FINDINGS AND RECOMMENDATIONS FOR THE ISSUANCE OF SECTION 10(a)(1)(B) INCIDENTAL TAKE PERMITS ASSOCIATED WITH THE EAST CONTRA COSTA COUNTY HABITAT CONSERVATION PLAN/NATURAL COMMUNITY CONSERVATION PLAN

I. DESCRIPTION OF THE PROPOSED ACTION

The U.S. Fish and Wildlife Service (Service) proposes to issue one Incidental Take Permit (Permit) to the City of Pittsburg, City of Brentwood, City of Clayton, City of Oakley (collectively referred to as "Cities"), Contra Costa County Flood Control and Water District (Flood Control District), East Bay Regional Park District (EBPRD), the East Contra Costa County Habitat Conservancy (Implementing Entity), and Contra Costa County (County) (together with their successors and assigns) (collectively the Permittees or Applicants) under the authority of section 10(a)(1)(B) and section 10(a)(2) of the Endangered Species Act of 1973, as amended (Act) for a period of 30 years.

Documents used in the preparation of this statement of Findings and Recommendations include: the Final East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP or Plan) (Habitat Conservation Plan Authority (HCPA) 2006); and Final Environmental Impact Statement (Service 2006); the Implementing Agreement (IA); the Service's Biological and Conference Opinion on the Permit application (Service 2007); documentation for the approval of the Final HCP/NCCP by the City of Pittsburg, City of Brentwood, City of Clayton, City of Oakley, Flood Control District, EBRPD, Implementing Entity, and Contra Costa County. These documents are incorporated by reference.

The Service has reviewed the above-described documents, as well as other available biological information and other documentation, in accordance with 16 U.S.C. 1539(a), 50 C.F.R. 17.22(b), 17.32(b) and other applicable laws and regulations.

Under the Permit, the Permittees would receive incidental take authorization for certain activities administered under their jurisdictions as identified in the HCP/NCCP submitted by the prospective Permittees as part of the Permit application. The Cities and County would also have the ability to extend take to third parties (i.e., landowners and developers) that are under their direct control. This would be accomplished by incorporating on-site take avoidance, minimization, and mitigation measures into any Urban Development Permits the Cities or County issue for projects covered under the Permit and located in areas covered by the Permit (Permit Areas) (see Section 13.2 of the IA). The HCP/NCCP also makes provisions to allow certain entities not subject to the authority of the Cities and County and not formally participating in the application (i.e., Participating Special Entities) to participate in the HCP/NCCP through an agreement that states that they will comply with specific mitigation obligations and other applicable provisions of the HCP/NCCP.

The prospective Permittees are requesting coverage under the Permit for twenty-eight species (Covered Species). The Permit would provide incidental take coverage for three endangered animal species: San Joaquin kit fox (*Vulpes macrotis mutica*); vernal pool tadpole shrimp

(*Lepidurus packardi*); longhorn fairy shrimp (*Brachinecta longiantenna*); and five threatened animal species: giant garter snake (*Thamnophis gigas*); Alameda whipsnake (*Masticophis lateralis euryxanthus*); California tiger salamander (*Ambystoma californiense*); California red-legged frog (*Rana aurora draytonii*); and vernal pool fairy shrimp (*Branchinecta lynchi*). The Permit would also cover nine animal species that are not currently listed under the Act: Townsend's western big-eared bat (*Corynorhinus townsendii townsendii*); tricolored blackbird (*Agelaius tricolor*); golden eagle (*Aquila chrysaetos*); western burrowing owl (*Athene cunicularia hypugea*); Swainson's hawk (*Buteo swainsonii*); silvery legless lizard (*Anniella pulchra pulchra*); western pond turtle (*Clemmys marmorata*); foothill yellow-legged frog (*Rana boylii*); and midvalley fairy shrimp (*Branchinecta mesovallensis*) should they become listed in the future during the term of the Permit. The Permit would become effective to authorize take of the currently unlisted covered animal species concurrent with their listing under the Act. Eleven currently unlisted plants Mount Diablo manzanita (*Arctostaphylos auriculata*); brittlescale (*Atriplex depressa*); San Joaquin spearscale (*Atriplex joanquiniana*); big tarplant (*Blepharizonia plumosa* ssp. *plumosa*); Mount Diablo fairy lantern (*Calochortus pulchellus*); recurved larkspur (*Delphinium recurvatum*); round-leaved filaree (*Erodium macrophyllum*); Diablo helianthella (*Helianthella castanea*); Brewer's dwarf flax (*Hesperolinon breweri*); showy madia (*Madia radiata*); and adobe navarretia (*Navarretia nigelliformis* ssp. *nigelliformis*) would also be considered Covered Species and included on the Permit. Although take of plant species is not prohibited under the Act and cannot be authorized under an incidental take permit the plant species would be included on the Permit in recognition of the conservation benefits provided to the species under the HCP/NCCP. If at any time during the term of the Permit, any plant listed on the Covered Species becomes subject to the take prohibition under the ESA, the Permit shall automatically become effective as to such species, and the Permittees shall receive incidental take authorization for that plant. Assurances provided under the "No Surprises" rule at 50 C.F.R. 17.3, 17.22(b)(5) and 17.32(b)(5) would extend to all Covered Species.

The Permittees are also seeking the issuance of a Natural Community Conservation Plan (NCCP) take permit from the California Department of Fish and Game (CDFG) under the authority of California Fish and Game Code section 2800 *et seq.* Thus, the Plan constitutes a Habitat Conservation Plan pursuant to the Act, and a NCCP pursuant to the California Natural Community Conservation Plan Act (NCCPA).

The NCCPA is broader in its objectives than either the Act or California Endangered Species Act (CESA). The primary objective of the NCCP program is to conserve natural communities at the ecosystem scale while accommodating compatible land use. An NCCP must provide for the conservation of species and protect natural communities within the 174,018-acre Inventory Area, which is a standard that goes beyond the requirement of the Act to mitigate to the maximum extent practicable for the impacts of projects on Covered Species. However, it is necessary to separate mitigation obligations of the Plan from the conservation components for two reasons. First, the Service and CDFG can only provide grant monies that contribute to the conservation component of the HCP/NCCP as neither agency can subsidize mitigation obligations. Second, as mentioned above, under the Act the Permittees are only required to minimize and mitigate for the impacts of their projects on Covered Species to receive an incidental take permit. In order to resolve this issue the land acquisition requirements for terrestrial land-cover types were assigned a mitigation component (i.e., acquisition required by the Plan resulting from Covered Activities)

or a conservation component (i.e. acquisition required by the Plan to contribute to a species' recovery) based on a "fair share" analysis found in Chapter 9 of the Plan. It was determined that new development is responsible for 52% of the land acquisition requirements, and existing development (i.e. the public) is responsible for 48% of land acquisition under the MUDA scenario as shown in Tables 5-7 and 5-8 of the Plan. This fair-share analysis is not applied to wetland land cover types, those impacts are separated by mitigation and conservation components based on other factors (Plan Tables 5-5, 5-16, and 5-17). It is anticipated that the HCP/NCCP will be carried out as a single Plan that is implemented as a whole.

Actions conducted under the HCP/NCCP and IA will comply with the provisions of the Migratory Bird Treaty Act, 16 U.S.C. 703 et seq. (MBTA) with strict avoidance measures for activities effecting MBTA-Covered Species. The western burrowing owl, tricolored blackbird, golden eagle, and Swainson's hawk are Covered Species and are protected under the MBTA. The MBTA prohibits the taking, killing, or possessing of migratory birds. The MBTA identifies a variety of prohibited actions including the taking of individual birds, young, feathers, eggs, nests, etc. There are currently no MBTA Covered Species listed under the Act and subject to a Special Purpose Permit at this time. Should any of the MBTA Covered Species become listed under the Act during the life of the Permits, the Permits would also constitute an MBTA Special Purpose Permit for that species for a three-year term as specified under 30 C.F.R. 21.27 subject to renewal by the Cities and County. To the extent that Covered Activities will impact unlisted Covered bird species protected by the MBTA, the Covered Activities must comply with the MBTA throughout the Permit Area.

Permit Area

The 174,018-acre Inventory Area is located in eastern Contra Costa County and comprises approximately one-third of the County. The Permit Area is the area in which the Permittees are requesting authorization from the Service and CDFG (collectively the Wildlife Agencies) for Covered Activities (see below) that may result in take of Covered Species. The Permit Area is land within the inventory area and is defined by the following parameters:

a. The Urban Limit Line (ULL) of Contra Costa County or the city limits of the participating Cities of Pittsburg, Clayton, Oakley, and Brentwood, whichever is largest. This portion of the Permit Area is referred to in the Plan as the urban development area (UDA).

b. The footprint of the specific rural infrastructure projects or activities that are outside the UDA as described in Chapter 2 of the Plan.

c. The boundary of any land acquired in fee title or conservation easement and managed under the Plan.

The Plan has been designed to accommodate reasonable and expected growth as based on the current General Plans of the Permittees. Participating jurisdictions have differing positions on where and how much future growth will occur. These differences may lead to changes in land use policies as the location of growth boundaries change because annexations may transfer land use authority from one jurisdiction to another, and General Plans are updated or amended. In

response to changes in land use policy made by the Cities and County, the HCP/NCCP Permit Area could expand or contract because of local land use decision made independently of the Plan. The Permit Area for the UDA will correspond to the County ULL or the city limits of the Cities, whichever is largest. To respond to these potential changes in land use the Permit Area boundary may change provided it is consistent with the following conditions:

a. The revised UDA, together with projected impacts from Covered Activities outside the UDA, does not exceed the maximum land cover, species habitat, or total impact projections set for in Chapter 4 of the Plan;

b. The revised UDA excludes areas designated as high priorities for acquisition under the HCP/NCCP conservation strategy (Plan Chapter 5 and Figure 5-3); and

c. The revised UDA is consistent with successful implementation of the HCP/NCCP conservation strategy (Plan Chapter 5 and Figures 5-2 and 5-3).

To address this issue, two *urban development areas* are defined for the purposes of the analysis. The *initial urban development area* (IUDA) is most of the area within the County ULL and city limits at the time the HCP/NCCP was released for public review. Urban development within the initial urban development area is expected to result in 8,670 acres of impact to land-cover types that may support Covered Species. The *maximum urban development area* (MUDA) is the largest area to which urban development could expand under the terms of this HCP/NCCP. Urban development within the MUDA is expected to result in 11,853 acres of impact to land cover types that may support Covered Species. With either UDA, another 1,126 acres of impact are expected from rural infrastructure projects and activities within HCP/NCCP preserves. Thus, total impacts allowed to receive take coverage under the Plan are 9,796 acres and 13,029 acres with the initial and maximum urban development areas, respectively. Of these total impacts, only 4,250 acres and 6,108 acres of impact are estimated to occur on natural land cover types (including ruderal) under the IUDA and MUDA scenarios respectively, amounting to 7% to 10% of the total acres of such land cover types outside existing preserves. Thus, more than half of the estimated impacts under each scenario are to non-natural land cover types such as cropland, orchard, or vineyard, which have a lower value to Covered Species than the natural land cover types.

The Permit would authorize for a period of 30 years, the incidental take of Covered Species associated with the conversion of a maximum of 13,029 acres of land cover types that include, but are not limited to: non-native grassland; oak woodland; oak savannah; agricultural lands; riparian areas; wetland; ponds; streams; or ruderal lands that currently, or in the future, could provide habitat for the Covered Species within the permit area (HCP/NCCP Tables 4-2, 4-3). The development of these lands would occur as a result of future growth and associated development, as addressed and covered by the HCP/NCCP, and would result in impacts to Covered Species, including take of species currently listed under the Act and their habitat. In addition, take resulting from the implementation of management and monitoring activities in the Preserves would be authorized by the Permit.

The take of Covered Species and their habitat resulting from urban development, is primary mitigated for, by the collection and use of mitigation fees to preserve and enhance approximately 7,039 acres of land under the IUDA, or approximately 10,592 acres of land under the MUDA. In addition, approximately 361 to 535 acres will be restored under the IUDA or the MUDA, respectively (these are mitigation acres only and exclude the recovery component). Preserved lands will be specifically managed in perpetuity for the Covered Species. The Plan also includes avoidance and minimization measures to reduce impacts on Covered Species resulting from Covered Activities. As discussed above, the Plan is also an NCCP and includes additional land acquisition provisions beyond those required for mitigation under ESA. The Plan's conservation strategy would result in an additional 8,955 acres under the IUDA and 9,471 acres under the MUDA. Land acquisition is likely to be greater because the Plan includes connectivity and other requirements that will likely result in additional acquisition to meet these targets. For example, parcels purchased to meet a specific requirement will contain additional acres of non-target land cover types.

Covered Activities

Activities proposed to be covered under the Permit (collectively, "Covered Activities) are the otherwise lawful activities which are described in Chapter 2 of the Plan and in the Biological and Conference Opinion (Service 2007) and summarized below.

The Permittees are seeking incidental take coverage for a maximum of 13,029 of authorized development under the MUDA located within the Permit Area. Covered Activities include *activities* (actions that occur repeatedly in one area or over a wide area) and *projects* (well-defined actions that occur once in a discrete location) (Plan Section 2.3). Covered Activities generally include urban development that converts Covered Species habitat to the following facilities: residential; commercial; industrial; public service buildings; parks; golf courses; public and private utilities; water supply pipelines; and waste management facilities (sewage treatment plants, recycling centers and transfer stations) (Plan Section 2.3.1.). Rural infrastructure projects and activities include new roads, road widening, road safety improvements, Byron airport expansion bridge replacement and repairs, bicycle trails, and flood protection projects (Plan Sections 2.3.2, 2.3.3). Covered Activities that may not be specifically identified in the HCP may be covered if the following criteria were met: it would not preclude achieving the biological goals and objectives; it would be an activity type that has been evaluated in Chapter 4 of the HCP/NCCP; and it would be consistent with the amount of take coverage assumed for the project or activity and sufficient take coverage remains under the Permit.

The Permittees are also seeking incidental take coverage associated with the acquisition, establishment, and management of the system of habitat reserves (Preserve System or Preserves) that will be created as a result of the HCP/NCCP. It is anticipated that some habitat enhancement, restoration, and creation activities may have temporary or permanent adverse effects on Covered Species resulting in take. For example, restoring stock ponds by planting emergent vegetation may result in harassment of California red-legged frogs. Harassment of species sensitive to human presence (i.e., San Joaquin kit fox, western pond turtle) resulting from low intensity recreation may occur. However, the Preserve System is designed to be large and diverse enough to ensure that the net effect of all Preserve activities is beneficial. Incidental take

coverage may be passed on to a third party entity(ies) for management, creation, restoration, and enhancement activities on the Preserves, and monitoring the Plan's success in meeting its biological goals (Plan Section 2.3.4).

Activities Not Covered in the Permit

The HCP/NCCP specifically does not cover the following: (1) Los Vaqueros Reservoir Expansion; (2) routine and on-going agricultural activities, with the exception of those conducted on the Preserves; (3) new irrigated agriculture; (4) wind turbine expansion or operation; (5) activities within Seal Beach Naval Weapons Station, Detachment Concord; (6) construction of rural infrastructure projects not listed in Chapter 2 of the HCP/NCCP; (7) rural residential development and urban development outside the UDA; (8) new rural landfills; and (9) mining.

Assurances to Private Land Owners

Coverage under this HCP/NCCP extends to private lands within one mile of Preserve boundaries that are being actively used for agricultural purposes at the time the Preserve is established. However, coverage will only be extended beyond the baseline that existed prior to the establishment of the Preserve and land owners are required to conduct surveys to establish a baseline and "opt-in" to the neighboring landowner's program in order to receive coverage under the HCP/NCCP (Plan Section 10.2.9). Take coverage does not include conversion of agriculture to other uses.

Participating Special Entities

The HCP/NCCP provides for Participating Special Entities, such as school districts, water districts, irrigation districts, transportation agencies, and local park districts, not directly acting as Permittees under the HCP/NCCP to opt-in to the Plan. To participate in the HCP/NCCP, such entities will be required to provide a description of the proposed activity, a map, and an analysis of the potential impacts of the proposed activity. Entities must contribute to the HCP/NCCP implementation through payments of fees as set forth in Chapter 9 of the Plan. When all conditions for inclusion have been met the Implementing Entity will issue a "Certificate of Inclusion" that will allow the proposed activity to be covered under the HCP/NCCP.

Relationship of Plan to Section 7 Consultations

Private or public actions that are Covered Activities under the HCP/NCCP may also be subject to separate Section 7 review if those actions are authorized, carried out, or funded by federal agencies. Incidental take for Covered Activities carried out by the Permittees or those granted by the Permittees will be subject to the take mitigation, minimization, avoidance and other measures provided for under the HCP/NCCP. To the extent that Covered Activities involving a federal nexus are determined to affect federally listed species or adversely modify designated critical habitat and would, as such require a Section 7 consultation with the Service under the Act, incidental take coverage would occur though the Section 7 process; however, the Service's Obligations and Assurances provided for in Section 16.1 of the IA would apply. Furthermore, federal agencies do not receive "No Surprises" assurances and may be required to provide

additional compensation or minimization measures to offset the impacts of projects that require federal permits.

Term of the Permit

The Permits would be in effect for a period of 30 years. Section 19 of the IA describes provisions for revocation, suspension, or termination by the Service or CDFG of the Permit. Under these provisions, should the Permittees request early termination of its Permit, the Permittees would be required to fulfill its mitigation obligations for all authorized development approved, authorized, or carried out prior to termination. Mitigation obligations will be in accordance with the HCP/NCCP and the IA for all urban development approved, authorized, or carried out. The Service may suspend or revoke a Permit because of a violation of the Permit and/or pursuant to any applicable Federal laws or regulations. If the Permit is revoked or suspended, the Permittees remain obligated to fulfill all of its responsibilities under the Permit for any permitted activity approved, authorized, or carried out by the Permittees between the effective date of the Permit and date of the Permit suspension or revocation.

Any Applicant, except for the Implementing Entity, may unilaterally withdraw from the IA and Plan participation with a ninety (90) day written notice to the Service, CDFG, the Implementing Entity, and other Permittees (IA Section 20). The withdrawing Applicant shall remain obligated to ensure implementation of all existing and outstanding minimization and mitigation measures required under the IA, the HCP/NCCP, and the Permits, and take that the Permittee itself caused, or authorized prior to withdrawal. The remaining Permittees shall remain obligated to implement the Plan. However, if it is determined that the remaining Permittees can no longer practicably or feasibly implement the Plan, the Plan and/or the Permits may be amended.

The Implementing Entity (or its agents), in carrying out its reserve acquisition and management activities, is acting on behalf of the County and Cities. Noncompliance by the Implementing Entity (or its agents) with the terms and conditions of its Permits, the HCP/NCCP or IA, shall be considered a failure of the County and Cities to comply with their obligations under the HCP/NCCP and may result in suspension and/or revocation of the Permit.

Background

During the 1990s, the County was one of the fastest developing regions in the state with the majority of the development occurring in the eastern portion of the County. In 1997, representatives of the Service and the CDFG initiated discussions with the County, the Cities of Antioch, Brentwood, Clayton and Pittsburg, and the Contra Costa Water District (CCWD) regarding the possibility of a regional plan to address the conflicts of rapid urban development and the cumulative loss of habitat for federally listed species and native species. Rapid urban development required proponents of public and private development to acquire incidental take permits from the Service and CDFG for impacts to endangered, threatened, and rare species and their habitats. This process resulted in delays and increased costs to public and private development projects. In addition, the project-by-project mitigation resulted in an assemblage of unconnected protected properties with no overall vision of how these unconnected properties would provide a benefit to species.

On January 25, 2000, the County Board of Supervisors declared its intent to work with other agencies to prepare an HCP for the area in East Contra Costa County, and directing staff to work with the Cities, and other local agencies, and stakeholder group to determine their willingness to work together. In April of 2000, CCWD committed to work with the local jurisdictions to develop, and agreed to provide funding for, a regional HCP as a condition of future water deliveries to CCWD. This commitment was made during a U.S. Bureau of Reclamation (BOR) consultation with the Service regarding CCWD's construction of a multi-purpose pipeline and future water supply implementation. The Service, BOR, and CCWD agreed that a regional HCP would offset the adverse growth-inducing effects of future water deliveries within CCWD's service area. CCWD is limited in its water delivery to 148,000 acre/feet until an HCP is completed and a section 10(a)(1)(B) permit is issued.

Subsequently, six entities formed the HCPA, a Joint Powers Authority, consisting of the Cities of Brentwood, Clayton, Pittsburg, Oakley, CCWD, and East Bay Regional Park District. The County joined the HCPA in 2001. The City of Antioch did not join the HCPA. The Flood Control District joined the planning effort in early 2004.

Conservation Strategy

The purpose of the HCP/NCCP is to promote biological conservation in the Inventory Area in conjunction with economic and urban development within the Permit Areas. The HCP/NCCP was developed as a multi-species conservation program designed to provide a regional conservation strategy for the protection and conservation of threatened, endangered, and sensitive species and their habitats in the Inventory Area located in ECCC. The HCP/NCCP emphasizes conservation of the overall ecosystem by maintaining and enhancing a combination of wetland and upland habitat values utilized by the Covered Species. The Plan establishes a conservation program to minimize and mitigate the expected loss of habitat values and incidental take of Covered Species that could result from Covered Activities.

The primary biological goal of the HCP/NCCP is to conserve Covered Species and their habitat in the Inventory Area by creating and managing a Preserve System. For the Permittees the primary mitigation is the assembly and management of a Preserve System for the conservation of natural habitats and their constituent wildlife populations. The creation of a Preserve System would, in addition to the approximately 45,000 acres of already protected lands (i.e., East Bay Regional Park System and Los Vaqueros watershed) protect 7,039 acres under the IUDA and 10,562 acres under the MUDA as mitigation. The contribution to recovery portion of the conservation strategy would provide an additional 8,955 acres under the IUDA and 9,471 acres under the MUDA. These acreage requirements represent a minimum requirement under the Plan to mitigate for impacts of Covered Activities and contribute to the recovery of Covered Species. Land acquisition is likely to be greater than these minimum acre requirements because the Plan includes connectivity and other requirements that will likely result in additional acquisition to meet these targets. In addition, parcels purchased to meet a specific requirement will contain additional acres of non-target land cover types. The Wildlife Agencies have committed to acquiring 8,700 acres as permitted by law.

The conservation strategy is based on a conservation biology model, using the following preserve design tenets: maximize the size of the preserve; acquire the highest-quality natural communities and habitats; link preserves; buffer preserves from urban impacts; minimize edge effects; include a range of contiguous environmental gradients; include entire watersheds, subwatersheds and headwater streams, when possible; include the full ecological diversity within natural communities; preserve management should be feasible; protect multiple populations of Covered Species; and protect suitable but unoccupied habitat for Covered Species. The Preserve System should fully represent environmental gradients and include entire watersheds when feasible. The Preserve Design Principles section in Chapter 5 of the Plan includes a full discussion on the conservation biology principles that were considered in developing the Preserve System design.

The conservation strategy was further refined by using a multi-scale approach based on conservation biology. Landscape-level elements of the conservation measures encompass diverse vegetation communities and the spatial requirement of wide-ranging Covered Species. The community-level measures address the enhancement, restoration, and management of vegetation and species habitat. Species-level measures address the remaining needs of Covered Species for protection of individuals and population. Species-level measures were developed only when landscape- and community-level measures were not sufficient to address the conservation needs of the Covered Species. Section 5.2.1 of the Plan details the conservation strategy approach.

The conservation strategy also takes into accounts the needs of Covered Species by protecting multiple populations of Covered Species by linking protected lands to reduce the risk of local extirpation and ensure genetic connectivity of populations, and protecting the higher-quality habitats for Covered Species as well as suitable but unoccupied habitat. Unoccupied habitat is targeted for preservation as it allows for future shifts in population size and location in response to natural and anthropogenic environmental changes.

Because the conservation strategy is based upon the impacts estimated under the MUDA, approval by the Permittees of future urban development beyond the MUDA and the limitations stated previously are not covered by this HCP/NCCP. Impacts of such development proposals, if they ever happen, would be addressed outside of the HCP on a project-by-project basis unless the Plan was amended to include them.

The HCP/NCCP conservation strategy developed in support of the proposed Permit contains the following: (1) identification and implementation of incidental take avoidance and minimization measures to minimize impacts to species covered by the HCP/NCCP; and the (2) establishment, enhancement, and management of approximately 30,000 acres of Preserve under the MUDA. Although the primary means of mitigating impacts on and conserving Covered Species is accomplished by protecting high quality habitat, habitat enhancement, restoration and creation are important components. Habitat enhancement is the improvement of an existing degraded vegetations community. It involves improving one or more ecological factors, such as native species richness, species diversity, overall vegetative cover, and wildlife habitat function. Restoration as defined is the establishment of a vegetation community in an area that historically supported it, but no longer does because of the loss of one or more required ecological factors.

Restoration will be required for habitat loss of wetlands, riparian woodland, and oak savanna at ratios ranging from 1:1 to 3:1. Restoration to mitigate for impacts and contribute to recovery is estimated to occur on 436 to 598 acres under the IUDA or MUDA, respectively. Habitat creation is the establishment of a vegetation community in an area that did not previously support it, for example, creating ponds in an area that did not previously support ponds.

A monitoring and reporting plan to determine the anticipated biological success of the HCP/NCCP will be further developed from the framework, guidelines and specific suggestions provided in Chapter 7 of the HCP/NCCP. The Adaptive Management Plan will use this, and other information, to improve the biological success of the conservation strategy by incorporating new information as it becomes available or conditions change.

The inventory area was divided into six zones called the Acquisition Analysis Zones (Zones). These Zones were based on physical and biological features such as watersheds, ridgelines, and major breaks in land cover types or vegetation communities. These Zones further divided into Subzones on the basis of smaller watershed boundaries; landscape position, land cover dominance; conservation value within Zones and, in some cases, their function as potential movement route for the San Joaquin kit fox. Land acquisition requirements within Zones 1, 2, and 3 that are set forth in the HCP/NCCP will be met regardless of how much urban development is permitted under the Plan. Land acquisition in Zones 4, 5, and 6 will be scaled according to the extent of urban development permitted under the Plan to ensure that funding obligations of the Plan can be met. Specific lands for acquisition were not identified in order to maintain flexibility in acquiring lands when they become available. Acquisition targets were set taking into consideration the ability to achieve the biological goals and objectives set forth in the HCP/NCCP as well as reflecting a region-wide assessment of, and mitigation for, impacts to the Covered Species. The HCP/NCCP identified the percent of land that is required to be purchased in Zones 1 through 3 and their associated Subzones. These land acquisition requirements address both the mitigation and contribution to recovery components of the Plan. The acquisition requirements for Zones1 through 3 are as follows:

Zone 1: In Subzone 1a at least 85 acres of annual grassland will be acquired consistent with the Memorandum of Understanding (MOU) between Discovery Builders (Seeno Homes) and the HCPA (see Section 9.7 of the IA). The lands acquired under the MOU provide a linkage for California tiger salamanders between Detachment Concord and permanently protected open space in Pittsburg, and provide golden eagle foraging habitat. At least 1,450 acres of annual grassland in Subzones 1b and 1c will be acquired, and provide a connection from EBRPD's Black Diamond Mines Regional Preserve (BDM) to Detachment Concord. This connection will provide a large, contiguous block of habitat that will benefit Covered Species, including but not limited to, California red-legged frog, California tiger salamander, and western pond turtle. In Subzone 1d, 25% of the grassland will be acquired. There is no land acquisition requirement for Subzone 1e, however if land is acquired, it will be contiguous with other protected lands.

Zone 2: In Zone 2a, 1,104 acres will be acquired. In Subzone 2a, acquisitions will focus on the northwestern and southeastern corners to increase the size of the connection between BDM and Clayton Ranch (owned by EBRPD). In Subzones 2b or 2c or both, the acquisition must provide a connection between BDM and Clayton Ranch. The connection must be 0.5 mile

in width to minimize edge effects to a movement corridor for Alameda whipsnake, California red-legged frog, and other Covered Species. Further acquisition requirements include the acquisition of at least seven of the 13 ponds in Subzone 2c, 121 acres (90% of 135 acres) of the remaining chaparral in Subzones 2a, 2b, and 2c. In Subzone 2a, land will be acquired to protect the known population of Mount Diablo manzanita. In Subzone 2f, land acquired to provide a movement corridor for San Joaquin kit fox will also include the known occurrences of big tarplant and the known occurrence of round-leaved filaree in Deer Valley. Subzone 2h acquisitions must include the known occurrences of Mount Diablo manzanita and Brewer's dwarf flax. Subzone 2d acquisitions must include the known occurrence of round-leaved filaree. In Subzone 2h, parcels that provide suitable habitat for silvery legless lizard will rank high for acquisition. Land that supports suitable habitat for vernal pool invertebrates will be acquired whenever possible.

Zone 3: At least 159 acres of the 177 acres of chaparral/scrub modeled as suitable core habitat for Alameda whipsnake will be acquired in Subzone 3a. This is the largest block of chaparral/scrub habitat outside of existing public lands. All lands acquired in Subzone 3a must contribute to the linkage between the chaparral/scrub habitat and other chaparral patches in Mount Diablo State Park. Further, the land acquisition must contribute to that linkage and be connected to Clayton Ranch through existing protected lands or HCP/NCCP preserves. There will be no acquisition requirements in Subzones 3b and 3c.

Land acquisition requirements in Zones 4, 5 and 6 vary according to the amount of urban development that is permitted under the HCP/NCCP. The following describes the acquisition targets for Zones 4, 5, and 6 according to the IUDA and MUDA:

Zone 4: Under the IUDA, land acquisition will be focused along areas of Marsh Creek in the Briones Valley (Subzone 4d) and upstream in Subzone 4c, and the Upper Marsh Creek Subbasin located in Subzones 4a, 4c, 4e, 4f, 4g and 4h. Subzone 4d acquisitions will protect movement routes for San Joaquin kit fox, and protect breeding habitat for western burrowing owl, California tiger salamander, and California red-legged frog. Subzones 4c and 4d contain 103 acres of the available riparian woodland/scrub. In Subzone 4h, acquisitions must link the Morgan Territory Ranch with Morgan Territory Regional Preserve and Mount Diablo State Park. Expanding protected lands north of Morgan Territory Regional Preserve will improve connectivity for Alameda whipsnake by protecting patches of chaparral/scrub and grassland and extensive stands of oak woodland. Morgan Territory Regional Preserve provides connectivity between the Los Vaqueros Watershed land and Mount Diablo State Park, both of which provide core areas of Alameda whipsnake habitat (Service 2002). Subzone 4b has no land acquisition requirements because of extensive ranchette development. At least 270 acres of chaparral/scrub (of 435 acres present) will be acquired in Zone 4. In Subzones 4a and 4h, at least 200 acres (90%) of the 222 acres of modeled Alameda whipsnake habitat will be acquired. Under the IUDA, Subzone 4c acquisitions must focus first on the riparian woodland/scrub habitat along Marsh Creek or areas suitable for riparian woodland/scrub restoration. In Subzones 4f and 4a, the two known occurrences of Brewer's dwarf flax must be acquired. In Subzone 4a, the known occurrence of Diablo helianthella must be acquired. In Subzone 4b the known occurrence of Mount Diablo fairy lantern, if extant, must be acquired. Under the MUDA, land acquisition will be scaled according to the level of impacts.

Zone 5: Under the IUDA at least 5,300 acres of annual grassland and 750 acres of alkali grassland in Subzones 5a, 5c, and 5d will be preserved and will focus on bringing the total protection of alkali grassland and alkali wetlands in the inventory area to at least 65%. Maximizing the acquisition of the largest blocks of relatively flat land that are uncommon in the inventory area is the primary focus in Subzone 5a. A second priority is to acquire land in Subzone 5d to improve linkages between Vasco Caves Regional Preserve and surrounding open space to benefit San Joaquin kit fox. Another secondary priority is to preserve at least 1,000 acres of annual grassland in Subzone 5c to provide foraging habitat for Swainson's hawk and additional habitat for San Joaquin kit fox. Zone 5 acquisition will also preserve suitable habitat for recurved larkspur, San Joaquin spearscale, and brittlescale. Land acquisition objectives must include protecting two of the four known occurrences of brittlescale in Subzones 5a and 5d, and two occurrences of recurved larkspur in Subzones 5a or 6d. Sites will be acquired with suitable habitat for vernal pool invertebrates and protect habitat within the Altamont Hills core area recovery region as described by the Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (Service 2005).

Future development at the Byron Airport may be mitigated on-site rather than the County paying the fees because of the habitat values on the lands owned by the Byron Airport. Preserved lands would contain alkali grassland, alkali wetland, and grassland that are adjacent to the existing preserve and mitigation bank that were established when the airport was built. On-site preservation would be 113 acres, and an additional 170 acres preserved off-site in Subzones 5a or 5d. Should the County choose to preserve land off-site they must dedicate a conservation easement on the areas proposed for permanent preservation on an incremental basis before impacting the last 22 acres that remained covered by the 1992 biological opinion issued by the Service and the 1993 Section 2081 permit issued by the California Department of Fish and Game. For every acre of impact above this threshold, 2.4 acres will be preserved up to a maximum preservation requirement of 283 acres with full buildout of the airport. Byron Airport may elect to avoid and permanently preserve 14 acres of the area proposed for impact on the north edge of the east-west runway. If the 14 acres are preserved in its entirety, the requirements for off-airport conservation may be reduced by 42 acres. If the MUDA is reached, 8,100 acres of the annual grassland in Subzones 5a, 5b, 5c, and 5d; at least 900 acres (80%) of the alkali grassland; and 40 acres (90%) of the alkali wetlands will have been acquired as well as important habitat connections between already protected lands and the Preserves. Seasonal and alkali wetlands along the Contra Costa-Alameda County line south of the California Aqueduct with a link to CDFG lands in Alameda County will be acquired. Acquisition priorities will include those sites with suitable habitat for vernal pool invertebrates in areas designated as recovery units. Where feasible, land will be acquired in Subzone 5c that are modeled for silvery legless lizard.

Zone 6: Located in Subzone 6a, Dutch Slough is a 1,166-acre site in Northeastern Oakley that was recently acquired by the California Coastal Conservancy and the California Department of Water Resources with the goal of restoring the site to a self-sustaining mixture of shallow water, intertidal marsh, and floodplain, riparian and upland habitats for numerous species. There are opportunities adjacent to Dutch Slough to support and augment restoration efforts by acquiring cropland and pasture lands for restoration. In Subzones 6b, 6c, or 6f,

riparian restoration opportunities occur along Kellogg Creek. Numerous restoration opportunities exist within Subzone 6a and 6c and within the UDA along Marsh Creek. Parcels may be acquired as long as they are within 1 mile of the Zone 6 boundary. Acquisition in Zone 6 is limited to 250 acres since finding willing sellers of agricultural land is expected to be extremely limited. This is because certain agricultural crops such as orchards and vineyards will not be acquired due to their inability to meet the biological goals for species using agricultural lands. It is anticipated that limiting the types of crops on an agricultural parcels will reduce the pool of either willing sellers or the placement of easements. However, approximately 18,782 acres of agricultural lands are protected under strong zoning ordinances. If the preservation of cropland or pasture cannot be achieved in Zone 6, grassland habitat that benefits Swainson's hawk in Subzones 5a and 5c may be substituted. Preservation of cropland or pasture in Zone 6 can be substituted for preservation of riparian woodland/scrub at a 5:1 ratio. Cropland or pasture preservation in Zone 6 can be substituted for riparian restoration at a ratio of 10:1. At least 100 acres (21%) of the alkali grassland in Zone 6 will be preserved to protect alkaline plants and alkali sink scrub as well as at least 20 acres of alkali wetland. At least two occurrence of recurved larkspur in Subzones 5a or 6d will be protected.

Details regarding the proposed mitigation and minimization measures can be found in Chapters 5 and 6 of the Plan. As required under the No Surprises Rule (50 CFR Parts 17 and 22 as modified on February 28, 1998), unforeseen and changed circumstances are also addressed and are discussed in more detail later in this document.

Identification of Species to be Covered Under the HCP/NCCP

The Service evaluated 28 species that could be covered under the HCP/NCCP based on the following criteria: (1) sufficient information is known and for which adequate existing management prescriptions exist or can be easily defined and implemented and is sufficient to support an application for a section 10(a)(1)(B) Permit; or (2) information is limited, but the species share habitat with other Covered Species whose management prescriptions would be of sufficient benefit to support its inclusion under the HCP/NCCP.

Incidental Take Avoidance and Minimization Measures

Chapter 6 of the HCP/NCCP and the Service's Biological and Conference Opinion (Service 2007) discuss in detail specific incidental take minimization measures designed to minimize the impacts by averting the actual mortality or injury of individuals of Covered Species. Avoidance and minimization measures required in the HCP/NCCP include, but are not limited to: (1) planning surveys (Section 6.3.1.); (2) pre-construction surveys (Section 6.3.2); (3) construction monitoring (Section 6.3.3); (4) specific conditions on Covered Activities (Section 6.4); (5) species-specific take avoidance and minimization measures (Section 6.4.3); and (6) land preservation according to priority zones (Section 5.3.1)

No-Take Species

Covered Activities will avoid all impacts on plant species that are considered "no-take" plants. These plants are considered extinct or extirpated from the inventory area and the likelihood of

discovering new populations is extremely unlikely. However, if a new population of these plants area is found, the protection of that plant or population will be of highest importance to the conservation of that species. Plants considered no-take are as follows: large-flowered fiddleneck; alkali milkvetch; Mount Diablo buckwheat; diamond-petaled poppy; Contra Costa goldfields; and caper-fruited tropidocarpum. If a no-take plant is found on a project site, it is the responsibility of the project applicant to prepare a long-term management and monitoring plan and fund the implementation of those plans. If the applicant transfers ownership and management responsibilities to the Implementing Entity, the applicant may be required to provide additional funds to offset additional management costs.

No-take animal species are those species that are defined as fully-protected under the California Department of Fish and Game Code Section 5515. Fully-protected species within the inventory area include white-tailed kite, peregrine falcon, golden eagle, and ringtail. Direct take of raptors is unlikely, as preconstruction surveys would identify any nests. These species are expected to benefit from the conservation plan set forth by providing foraging habitat for the raptors. Ringtails should benefit by the preservation of chaparral and riparian areas.

Protection of Rare Plant Species

The HCP/NCCP developed species distribution models for eight of 11 covered plant species. For three species, insufficient information exists to develop a credible model. In addition, locations of all covered plants in the inventory area are not known. These limitations will require project proponents to determine if covered plants will be impacted from their project in order for the Implementing Entity to mitigate losses as required. The majority of known populations of these plants occur outside the UDA; consequently, most of the populations are expected to be found within the Preserve System. Regardless, to ensure that covered plants are conserved, surveys will be conducted by project applicants prior to land acquisitions for the Preserve System. If covered plants are found during project surveys, the project design will be modified if possible. If avoidance is not possible, the rare plant survey information would be used to guide the preserve acquisition process. Preserves must support Covered plant Species populations that are as healthy as or healthier than those that will be adversely affected by Covered Activities. A healthy population if defined as one that has a stable or increasing population growth rate or has a high potential to increase in size with improved management.

When impacts on covered plant species are unavoidable, plants will be removed and salvaged. Field trials will be conducted to determine the efficacy of different methods and determine the best methods for the establishment of new populations. New populations will be managed and located in such a manner that they do not become part of an existing population as measured by the potential for genetic exchange. Areas selected for new populations will be based on the following: historic range; soil type; soil moisture; topographic position, including slope and aspect; site hydrology; mycorrhizal associates; presence or absence of typical associated plant species, presence or absence of herbivores or plant competitors; and site accessibility for establishment, monitoring, and protection of trampling by stock or trail users.

Uncommon Vegetation and Uncommon Landscape Features

The distinctive characters of uncommon vegetation alliances and landscape features may support unique suites of species thereby contributing disproportionately to the overall biological diversity of an area. Examples of uncommon vegetation types include wildrye grassland, wildflower fields, squirreltail grassland, serpentine grassland, saltgrass grassland, alkali sacaton, and bunch grass grasslands. Uncommon landscape features are rock outcrops, caves, springs and seeps, scalds, and sand deposits. The locations of these features were not mapped for the HCP/NCCP due to funding limitations and the small size of the features. However, planning survey results for these features will be tracked by the Implementing Entity to verify the assumption that there will be little or no impact on these resources.

Rural Roads

New roads or major road improvements covered under the HCP/NCCP may have impacts to Covered Species beyond the footprint of the road. Specific conservation measures will be developed for each identified road to minimize impacts. Table 6-6 of the Plan sets forth the specific conservation measure required for each road. Not all roads will be required to adopt all conservation measures. The conservation measures include siting requirements that will place the road and staging areas in the least environmentally sensitive area. Design requirements and minimization measures will be identified and updated when new information becomes available. If the road already exists, studies will be conducted for one year to determine which species cross the road and the location of the preferred crossing. This information will provide information on the location(s) where the use of bridges and spans will be most appropriate. The applicant would receive a fee discount on a case-by-case basis to make measures that have been determined to be optimal, attractive to the applicant.

Establishment and Management of Preserves in Perpetuity

The HCP/NCCP proposes to offset the adverse effects of Covered Activities by providing for the establishment of an interconnected preserve system composed of upland, wetland, and riparian corridors. Primary mitigation under the Plan is the progressive establishment of a system of large, interconnected blocks of land that will be managed for the benefit of the Covered Species. A maximum of approximately 13,029 acres, including rural infrastructure projects and activities in the preserve area, could be impacted under the MUDA. The estimated size of the Preserve System under the MUDA scenario is 30,000 acres. This includes mitigation and recovery requirements, and factoring in the need for connectivity and the irregular boundaries of parcels. All lands acquired by the Implementing Entity will be acquired through fee simple or easement acquisition from willing sellers. Minimum land acquisition requirements for each development scenario are identified in Tables 5-7 and 5-8 of the HCP/NCCP.

The Implementing Entity will improve and manage the Preserve System in a manner that will benefit the Covered Species. While the Preserve System is intended to benefit all Covered Species, individual preserve sites may focus on specific habitat that supports only some the Covered Species. The Implementing Entity will prepare specific Preserve Management Plans for Preserve lands acquired under the HCP/NCCP. These plans will detail habitat restoration and

management for Preserves acquired by the Implementing Entity and addresses the specific resources and habitat values of each preserve site. The components of Preserve Management Plans will include, but are not limited to: vegetation management; fire management; wetland and pond management; wetland restoration and pond creation; grassland management; natural burrow availability and prey base for Covered Species in grasslands; oak woodland and oak savanna management; chaparral/scrub habitat management; and stream and riparian woodland/scrub management.

Monitoring and Reporting Plan

Two related but separate types of monitoring programs will be required under the HCP/NCCP. First, compliance tracking documents the Permittees' activities and ensures that the Implementing Entity complete obligations as specified within the HCP/NCCP and IA. Second, monitoring provides the biological data necessary to guide and direct the conservation strategy and ensures achievement of the biological goals and objectives. Chapter 7 of the HCP/NCCP sets forth the framework and guidelines, and specific suggestions that will help the Implementing Entity to develop a detailed monitoring program during the initial years of implementation. Monitoring shall be performed for the duration of the Permits and in perpetuity per the terms of the Plan.

Compliance Tracking: Compliance tracking is verifying that the Permittees are carrying out the terms of the HCP/NCCP the IA. A database, such as HabiTrak, or other database will be developed to track the HCP/NCCP implementation. The Implementing Entity will be the primary entity responsible for compiling, retaining, and making available to the Wildlife Agencies data on compliance with the provisions and obligations contained within the HCP/NCCP and IA. The Implementing Entity will provide annual reports over the term of the Plan that will document permit compliance. Compliance monitoring will include the status of the implementation of the HCP/NCCP (e.g., land acquisition, conservation easement agreements, location, extent and timing of impacts on Covered Species habitat and natural communities, management responsibilities, and other aspects of the Permits, HCP/NCCP, and IA). The Implementing Entity will report to the other Permittees and Wildlife Agencies on the progress of the HCP/NCCP conservation strategy. The Permittees' compliance with the HCP/NCCP obligations will be reported in the Implementing Entity's annual report. Additional detail regarding Compliance Monitoring is located in Section 8.9.2 of the HCP/NCCP.

Natural Community and Species Level Monitoring: Monitoring will evaluate the effects of authorized development and other Covered Activities and will determine whether the effectiveness of the Preserves is consistent with the assumptions and predictions made when the HCP/NCCP was developed and approved. Natural community monitoring will assess ecosystem and natural community function to determine the response of natural communities to management. Species level monitoring evaluates the HCP/NCCP to ensure that the biological goals and objectives are being met. It will address the response of Covered Species to the conservation measures and adaptive management, status and trends of Covered Species and trends in abundance for selected wildlife indicator species. The Implementing Entity will be responsible for completing the monitoring and providing the results in accordance to the reporting schedule found in Section 8.10 of the Plan.

Annual Report: The Implementing Entity will compile and submit an annual report to the Wildlife Agencies detailing the assembly of the Preserve System; stay ahead provisions; implementation of Covered Activities; planning and other survey requirements; and implementation of all landscape-,community-, and species-level conservation measures to demonstrate compliance with the terms and conditions of the HCP/NCCP permits. The Permittees will be responsible for providing the Implementing Entity with information in their possession necessary for compiling the annual report. A detailed description of the components of the Annual Report is located in Section 8.10 of the HCP/NCCP.

Schedule

Section 8.11 of the HCP/NCCP provides for the milestones and identifies responsible parties for plan implementation. The following generally describes the timeline on what and when certain implementing tasks will occur. During the first year of the Plan, the Implementing Entity will be established, local ordinances to establish the mitigation fees will be adopted (Section 1.3. of the IA), local planners will learn how to review and process HCP/NCCP applications, and GIS and other databases will be established. During years 1 though 5, Preserve Management Plans developed, land acquired and management and monitoring will begin on new Preserves. Years 6 through 30, additional staff will be hired to manage Preserves, preparation and revisions of system-wide and Preserve-specific management plans and adaptive management and monitoring will be implemented. After the permit expires in year 30, the adaptive management and monitoring of the biological resources will continue as will the monitoring of restoration and habitat creation projects until they meet success criteria.

Biological Goals and Objectives

The biological goals and objectives were based on natural community types, species needs, Federal recovery plans, critical habitat rules; species-habitat models development for 21 species out of 28 species; and Wildlife Agency input and documentation of ongoing resource management plans being implemented in the inventory area. Where appropriate, the biological goals and objectives for Covered Species are addressed within the context of natural community and no additional species-specific goals were needed. Biological goals and objectives can be found in Chapter 5 and Table 5-1 of the HCP/NCCP.

Adaptive Management Plan

Adaptive management is a process that allows the Plan's Preserve management, conservation strategy, and monitoring to be adjusted during the life of the Permit to ensure that the most up-to-date information is being utilized, to ensure that the Plan's biological goals and objectives are being achieved, and to respond to changing conditions. Adaptive management will allow the Implementing Entity to address and respond to these uncertainties over time. Section 7.2 of the Plan discusses the designing of a biological monitoring and adaptive monitoring program; an extremely complex task that will take some time, because the Preserve System has not been acquired. Although the Preserve System has not been acquired and a detailed monitoring program cannot be developed, the general location of the Preserve System is well defined.

Chapter 7 of the Plan provides a framework, guidelines, and specific suggestions that will enable the Implementing Entity to develop a detailed monitoring program from the initial years of the HCP/NCCP through long-term management.

To achieve the monitoring and adaptive management goals the Implementing Entity will provide an organizational framework and decision-making process to evaluate the monitoring, research and other data to adjust management actions, establish baseline condition of biological resources, and incorporate hypothesis testing and experimental management. However, as the Preserve System will be acquired over time, the implementation schedule for the monitoring and adaptive management will be broken down into three main phases. For the first five years, information will be compiled from existing sources such as GIS data layers, aerial photography, and plans and reports provided by adjacent land owners. The framework for future monitoring of natural communities and focal species will be developed. When land is acquired, an inventory phase will begin which will focus on the inventory data to further refine the conceptual modes and develop site-specific management recommendations. The long-term monitoring phase will continue to monitor species response to enhancement, restoration, and habitat creation and determine the amount of future monitoring required.

The Plan's adaptive management provisions allow for revisions to management strategies to incorporate new or modified management strategies, including those that may be in recovery plans, or as stated above, in response to monitoring results in the Inventory Area or to new peer-reviewed scientific information. The Plan will incorporate recommendations made pursuant to future recovery plans, monitoring results from the Inventory Area, or new scientific information.

To facilitate the decision making process in incorporating changes under the adaptive management plan the Implementing Entity will be advised by the Regulatory Agencies, other land management agencies (or a Technical Advisory Committee), science advisors, the Independent Conservation Assessment Team, and the public. The Implementing Entity is responsible for implementing the adaptive management plan. These responsibilities include, but are not limited to: designing the monitoring program; gathering data; maintaining databases; identifying the need to modify the monitoring program and defining changes and how to change it; developing annual work plans; and periodically convening the Independent Conservation Assessment Team (see Plan Section 8.3.7).

Adaptive management revisions will be made consistent with the Minor and Major Amendments sections (see Plan Sections 10.3.2. and 10.3.3., respectively). Changes to the HCP/NCCP that are substantial in scope, and are beyond the scope of the Adaptive Management Program will require the amendment of the Permits, and additional review and approval under the Act, CESA, California Environmental Quality Act, and the National Environmental Policy Act. The Implementing Entity is required to maintain a complete administrative record of all HCP/NCCP revisions resulting from the Adaptive Management Program.

Changed and Unforeseen Circumstances

Changed and unforeseen circumstances are described in Section 10.2.1 of the HCP/NCCP and Section 12.2 of the IA. The Permittees would be required to provide planned responses to the

changed circumstances identified in the HCP/NCCP in accordance with the Service's "No Surprises" rule at 50 C.F.R. 17.22(b)(5) and 17.32(b0(5). The Permittees, in consultation with the Wildlife Agencies, have identified eight changed circumstances that may occur. Five of the changed circumstances apply to types of environmental events: fire; invasion by new exotic species or diseases; pond or wetland control structure failure; flooding; and drought. These five changed circumstances focus on the Preserves established under the HCP/NCCP. In the event of the changed circumstances identified above, the Implementing Entity shall assess the damage and with the concurrence of the Wildlife Agencies, prepare a report, and recommend remediation measures. Funding will be provided through the Implementing Entity, with funds provided as described in Chapter 9 of the HCP/NCCP. Three other changed circumstances consist of the listing of Covered Species, non-covered species that become listed, and vandalism of Preserves.

Listing of a Covered Species: If a Covered Species becomes listed, take coverage becomes effective for that species at the time of listing. No changes to the terms and conditions of the IA or modifications to the conservation measures are required, providing the Plan is being properly implemented.

Non-covered Species Becomes Listed: If a non-covered species becomes listed during the term of the permit, the Service and the Implementing Entity will identify any covered activity that if continued, may cause take, jeopardy, or adverse modification of critical habitat. The Permittees will implement measures identified by the Service as necessary to avoid take, jeopardy, and adverse modification of the designated critical habitat, if any, of the newly listed species, within the Permit Area until either their Permits are amended to cover the newly listed species or the Service notifies the Permittees that such measures are no longer necessary to avoid take, jeopardy to, or adverse modification of the critical habitat of, the newly listed species.

Vandalism of Preserves: Preserve system structures such as buildings, gates, fences, and signs may be vandalized during the permit term. If such damage occurs, remedial measures funded in this Plan anticipate and include such repairs.

Pursuant to the "No Surprises" rule, the Service will not require any additional land, water, or other natural resources without the consent of the Permittees in the event an unforeseen circumstance occurs. If the Service determines that an unforeseen circumstance has occurred and that additional land, land restrictions, or financial compensation beyond that required under the HCP/NCCP are needed to conserve the Covered Species, the Permittees will not be obligated to provide the additional measures without their consent. Pursuant to 50 C.F.R. 17.22(b)(8) and 17.32(b)(8) the Service retains the authority to revoke the Permits, in response to an unforeseen circumstance or otherwise, if we find that continuation of the take permitted under the permits would appreciably reduce the likelihood of the survival and recovery of a listed species.

II. PUBLIC COMMENT

A Notice of Intent to prepare the EIS for the federal action associated with the Project was published in the Federal Register on June 5, 2003 (68 FR 33736). Public comments on the scope of the Alternatives and environmental effects to be examined for the proposed Plan were requested by August 4, 2003. Three comment letters were received. Major issues and responses

are summarized in the Scoping Report included as Appendix A to the final EIR/EIS. A Notice of Availability of the Draft EIR/EIS and Draft HCP/NCCP, with a public review period of 60 days, was published in the Federal Register on September 2, 2005 (70 FR 52434). Comments were requested by December 1, 2005. In total, 18 comment letters were received, and a response to each comment is included in the Final EIR/EIS (Service 2006).

III. INCIDENTAL TAKE PERMIT CRITERIA-ANALYSIS AND FINDINGS

1. The taking will be incidental.

The Service finds that the take of Covered Species will be incidental to otherwise lawful activities. The activities for which incidental take coverage are sought under the Permit include private and public urban development, maintenance and construction of, rural infrastructure, and management and other activities on conserved lands. Rural infrastructure projects and activities include new roads and other transportation facilities, road widening, road safety improvement, road maintenance, flood control facility construction and maintenance, and the Byron Airport expansion. Any take resulting from the broad range of Covered Activities will be incidental to, not the purpose of, these otherwise lawful activities.

2. The Permittees will, to the maximum extent practicable, minimize and mitigate the impacts of taking of covered animal species and the effects to other Covered Species that may occur within the Permit Area.

The Service finds that the Permittees will minimize and mitigate the impacts of take of the Covered Species to the maximum extent practicable. The Permittees have developed the HCP/NCCP and IA pursuant to the incidental take permit requirements codified at 50 CFR 17.22(b)(2) and 50 CFR 17.32(b)(2), which require measures to minimize and mitigate the effects of issuing permits. Under the provisions of the HCP/NCCP, the impacts of the take will be minimized, mitigated and monitored in accordance with the requirements of the Permit through the measures identified above in the Conservation Strategy section and Chapter 5 (Conservation Strategy), Chapter 6 (Conditions on Covered Activities) and Chapter 7 (Monitoring and Adaptive Management Program). Under these provisions, the impacts of take will be minimized, mitigated, and monitored in accordance with the Permit requirements of Permit TE160958-0 through the following measures:

(1) Identification and implementation of incidental take minimization measures to minimize impacts to Covered Species.

(2) Establishment, enhancement, and active management of a minimum of 7,039 acres of habitat under the IUDA or approximately 10,592 acres of land under the MUDA that will be preserved in perpetuity, and managed specifically for the benefit of the Covered Species by the HCP/NCCP. These acres represent the minimum requirement for mitigation. The actual acquisition of lands are likely to be greater as the Plan includes connectivity and other specific requirements such as specific acquisitions for covered plant species Also parcels will contain additional acres of non-target land cover types. In addition, the Plan is also an NCCP, which

requires the Plan to contribute to recovery and to conserve natural communities at the ecosystem scale.

(3) Establishment of a monitoring and reporting plan to gauge the anticipated biological success and effectiveness of preserving Covered Species and associated habitat, and subsequently provide information for the Adaptive Management Plan.

(4) Implementation of a funding mechanism that contains assurances that the HCP/NCCP will be implemented.

The parcels to be acquired from within the approximately 86,000 acres of potentially available lands to create the Preserve have not been specifically identified. Acquisition priorities have been clearly defined in the Plan with acquisition priority maps and land acquisition requirements assigned to specific geographic areas. Such acquisition priorities were developed based on land cover mapping and habitat modeling for specific species. Therefore, we are unable to identify the specific acres of mitigation or lands that will contribute to recovery on a species-by-species basis. In addition, land acquisition by the Implementing Entity will be on a willing seller-willing buyer basis. Although individual land parcels acquired towards assembly of the Preserve will not contribute equally to any one species conservation needs, we have assumed for analysis purposes that the Permittees' maximum mitigation obligation of 10,562 acres will contribute to approximately 52 percent of the overall conservation strategy.

The minimization and mitigation measures proposed by the prospective Permittees were developed based on a comprehensive evaluation of impacts to Covered Species resulting from urban development and Preserve management practices that will occur in the Permit Area. As previously described, the monitoring and adaptive management program will monitor the effectiveness of the conservation program over the life of the Permit.

To make the finding that the conservation measures minimize and mitigate the impacts of take to the maximum extent practicable, the Service must first evaluate whether the conservation measures are rationally related to the level of take anticipated under the Plan. In effect, the minimization and mitigation measures need to address the biological needs of the Covered Species in a manner that is commensurate with the impacts to the species allowed under the HCP/NCCP. The Service believes the level of minimization and mitigation provided for in the Plan compensates for the impacts of take[1] of each Covered Species that will or could potentially occur under the Plan. The primary form of take of each of the Covered Species anticipated under the HCP/NCCP is in the form of harm resulting from the conversion of 13,029 acres of various habitat types to urban development. "Harm" is defined in the Service's regulations as follows:

> Harm ... means an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife

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[1]Plants are not subject to the take prohibitions of the ESA and an incidental take permit is not required for impacts to plants. However, in discussing impacts to the Covered species, seven of which are plants, the Service uses the term "take" to refer to both take of covered animal species and loss of covered plant species.

by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. 50 C.F.R. 17.3.

Thus, a loss of habitat, in and of itself, does not result in take; take results when the loss of habitat causes injury or death to a species by significantly impairing an essential behavioral pattern of the species. The Service evaluated the effects to Covered Species from urban development. It resulted in the loss of approximately 13,029 acres of land of varying habitat quality. The Service concludes that for each of the Covered Species, with the possible exception of California tiger salamander, the level of take will be low. California tiger salamander may experience more direct mortality than other species because the juvenile salamanders may spend several years in underground burrows before they reach breeding age. Adult California tiger salamanders also spend a majority of their life cycle in burrows. Therefore, the presence of California tiger salamander may go undetected and individuals are more likely to be crushed in burrows during construction activities. However, the Service further concludes that with respect to all of the Covered Species, including California tiger salamanders, the impacts of take will be effectively mitigated by the acquisition and management of approximately 7,039 acres under the IUDA and 10,562 acres under the MUDA of Preserve lands specifically acquired for the benefit of Covered Species. The Service made this conclusion because (1) the level of use by the species in the Plan Area is low or sporadic; (2) the Inventory Area constitutes a small portion of most of the species' ranges; (3) for those species known to use the Inventory Area, habitat remains available both within and outside of the Inventory Area to satisfy the species' essential behavioral needs; and (4) the habitat value of the managed Preserve Lands to the species is greater than the value of the various habitat types that will be converted to urban development. Consequently, the loss of habitat resulting from the Plan implementation is not expected to significantly impair the essential behavior patterns of these species resulting in their injury or death.

Townsend's Big-eared Bat

Townsend's big-eared bats are not known from published records to reside within Contra Costa County. However, the species likely roosts in the Inventory Area in suitable abandoned mines, abandoned buildings, and caves. It forages widely throughout the Inventory Area in a variety of land-cover types. The absence or rarity in the Inventory Area combined with the take avoidance, minimization, and mitigation measures incorporated into the Plan renders the potential for take of this species to be non-existent or low. The measures incorporated into the Plan to minimize and mitigate effects on western big-eared bat should effectively offset the impacts of any future take under the Plan.

San Joaquin Kit Fox

San Joaquin kit fox is distributed from lower Kern County north to Black Diamond Regional Preserve, the most northern portion of its range within the Inventory Area. Low-lying grasslands containing short grass with small mammalian prey species are the preferred habitat.

Under the MUDA, the Plan estimates that 4,576 acres of modeled habitat will be removed by Covered Activities. The southward expansion of Pittsburg and Brentwood would affect small

portions of modeled core habitat for kit fox, while growth of Byron and infill in Brentwood would affect small portions of habitat defined as low use in the HCP/NCCP model. The expansion of the Byron Airport would affect core habitat for this species. The westward expansion of Pittsburg would affect areas modeled as core habitat for kit fox, but this area may be outside the species' current range. However, this core habitat is contiguous with areas that are known to be used by kit fox, so it is reasonable to assume that it may be used at some time in the future by kit fox. In addition, the expansion of Vasco Road will remove core habitat and may impede its ability to travel between Alameda and Contra Costa County. Other rural road projects may also contribute to fragmenting grassland habitat.

The Applicants will mitigate the above impacts and contribute to recovery by protecting and managing, in perpetuity, between 17,164 to 20,465 acres of modeled habitat for kit fox under the IUDA and MUDA, respectively. Specifically within Subzones 2e, 2f, and 2h, 2,400 acres will be acquired to preserve a continuous band of modeled suitable core or low-use habitat for kit fox between Cowell Ranch State Park and Black Diamond Regional Preserve. In Subzone 2h at least 600 acres of land to enhance movement opportunities for kit fox through this area and provide a wide buffer zone between future development in the Sand Creek area (Antioch) and the movement routes in Horse and Deer Valleys (See figure 5.5 of the Plan). To minimize further the indirect effects of new development on the Preserves, the boundary will be designed to be as straight as possible to minimize edge effects. Covered Activities will also minimize edge effects by utilizing wildlife friendly designs, such as vegetation, greenbelts, or fencing to separate the Preserve land from urban development.

Development proposed with vested development rights within the urban limit line of the City of Antioch is likely to reduce the functionality of the proposed mitigation. The southward expansion of Antioch would degrade or eliminate the widest and most suitable potential movement route for the species (Horse and Lone Tree valleys). The change in the ULL reduces the feasibility of acquiring these lands because of financial costs from land use change designations.

Kit fox prefer low-lying flat areas in which to forage and den. They can use steeper terrain; however, studies have shown that in areas with more vegetation, which is typical of the steeper terrain in this area, coyotes and bobcats are more likely to kill them. In order to preserve the best available habitat, five valleys were identified that provided habitat and functional corridors that would enable kit fox to utilize the Inventory Area to the maximum extent possible. Round Valley, the most westerly valley goes from the Los Vaqueros Reservoir watershed north to BDM. Round Valley is very narrow in spots becoming less than 0.25-mile wide in spots. The northwestern end becomes very steep and rugged with dense vegetation. The functionality of this corridor may be further reduced or completely lost, if the expansion of Los Vaqueros Reservoir occurs since the increase in the water levels would flood the mouth of the corridor and force kit fox into grassland and chaparral on steeper terrain.

Briones Valley, the next valley to the east of Round Valley, is also very narrow in spots and the development of rural ranchettes fragment the annual grassland. The southern end is relatively wide and connects to the Los Vaqueros watershed. However the northwestern end becomes very narrow (0.1-mile) and kit fox would have to pass through oak woodland, which is not considered

suitable habitat. To the east of Briones Valley lies Deer Valley. Deer Valley is considered suitable habitat and a viable corridor. Although the northern end may support vegetation that would constrain movement further to the north, there is a low saddle that connects to the Roddy Ranch golf course, which was designed to allow kit fox to cross.

Horse and Lone Tree valleys, the most easterly valleys, form the widest and most likely used movement route for kit fox to travel between the Los Vaqueros watershed and Black Diamond Regional Preserve. This movement route is considered to have most high long-term viability of any of the valleys. However, the viability is threatened by the future development of 4,870 housing units in the Sand Creek area, which lies within the City of Antioch's boundaries. In November 2005, voters in the City of Antioch passed a measure to create an urban limit line south of their city limits and adopted a development agreement that vests the right to develop up to 700 housing units and 40 acres of hotels and commercial uses in Horse Valley. Annexation of this area was approved by the Local Area Formation Committee in November 2006. The Antioch city limits now extend to the northern edge of Sub zone 2f, encompassing all of Sub zone 2h and almost all of Sub zone 2g (although large portions of Sub zone 2h are not planned for development by Antioch). This new urban limit line greatly reduces the feasibility of acquiring most of the kit fox linkage through Horse and Lone Tree valleys. However, with the acquisition of part of the Horse/Lone Tree Valley movement routes and the entire Deer Valley movement route, there would be a minimum of two and possibly up to three routes for kit fox in the Preserve System into BDM with the Briones Valley as a secondary route.

To mitigate for the taking that will result from the Covered Activities, the Permittees will protect in perpetuity, at least 2,400 acres in Horse, Lone Tree, and Deer valleys to protect two important movement routes for kit fox between BDM and Cowell Ranch State Park. Permittees will also preserve an important movement route between Alameda County and Contra Costa County by protecting habitat in Zone 5 between the County line, the Byron Airport Habitat Mitigation lands, and the Los Vaqueros watershed. They will also preserve between 17,164 to 20,465 acres of modeled habitat for kit fox in the Inventory Area (estimated impacts to modeled habitat for kit fox are 2,841 acres and 4,576 acres under the IUDA and MUDA, respectively). Preserve management will also increase the small mammal prey base for kit fox. The protected habitat combined with remaining habitat that will be protected, will offset any take that results from Covered Activities. Minimization measures (Plan Table 6-1) include identifying measures (i.e., discouraging use of occupied dens and destroying unoccupied dens) that would make it unlikely that kit foxes would suffer death because of Covered Activities. Thus, the take of individual kit fox and its associated habitat are mitigated by the long-term conservation proposed by the Permittees.

Tri-colored Blackbird

Tri-colored blackbirds are a sporadic resident within the Inventory Area with two breeding colony occurrences along the northern border of the Los Vaqueros watershed. A portion of the potential nesting and foraging habitat will be lost under the Plan. However, significant amounts of such habitat will remain available to the species, minimizing the level of take resulting from habitat conversion.

The Preserve System will protect an estimated 126-164 acres of modeled core habitat, 16,747-20,138 acres of primary foraging habitat, and 242-365 acres of secondary foraging habitat within the IUDA and MUDA, respectively. Wetland and pond creation and restoration will provide additional habitat for tricolored blackbird. This managed habitat will be of higher quality than that which exists now. The impacts of take on the species resulting from Covered Activities are expected to be low and will be offset by the creation of high quality habitat in the Preserves. The species should benefit from Plan implementation as the managed wetland and pond creation will create high quality nesting habitat where little currently exists. Furthermore, no take of nests, eggs, or young is anticipated due to compliance by the Permittees with the MBTA. We believe that the species will persist in the inventory area over the long-term, and the long-term protection and management minimizes and mitigates the impacts to the species.

Golden Eagle

Golden eagles are holarctic in their distribution and occur in high numbers in the Inventory Area as a resident breeder and migrant. Golden eagles frequently strike wind turbines within the Inventory Area while foraging and are killed or injured. The construction and/or operation of wind turbines are not Covered Activities. The greatest impact resulting from the Plan is the loss of 13,491 acres of foraging habitat that does not currently have wind turbines. The Plan will protect and manage in perpetuity, 24,321 to 29,267 acres of foraging habitat within the Inventory Area. Acquired Preserves may have wind turbine leases that will be terminated at the end of the term, when feasible. Annual grassland within Preserves will be managed to enhance small-mammal populations. In addition, golden eagles are designated as no-take species by the plan, meaning that individuals and nests cannot be injured or destroyed by Covered Activities. The overall conservation proposed by the Permittees will benefit this species by maintaining suitable areas of foraging habitat and protecting nests. We believe that the species will persist in the Inventory Area over the long-term, and the long-term protection and management minimizes and mitigates the impacts to the species.

Western Burrowing Owl

Western burrowing owls (burrowing owl) are a wide-ranging species that occurs through the western United States and extends into southern Canada and northern Mexico and breeds from Southwestern Canada to southern California and Texas. Burrowing owls are known to occur within the Inventory Area and are non-migratory residents. Owls occur in the southeast portion of the Inventory Area; however, potential habitat occurs throughout the Inventory Area and location data may be an artifact of reporting biases. Covered Activities in Pittsburg and Oakley and within the County towards the northwestern portion of the Inventory Area would affect primary foraging or breeding habitat for burrowing owl. Expansion of Clayton would affect small portions of primary foraging habitat for the species. Up to 5,755 acres of breeding and foraging habitat for burrowing owl would be affected by covered activities under the MUDA. The Preserve System will protect 16,675 to 19,844 acres of breeding and foraging habitat and 345 to 703 acres of low-use habitat under the IUDA and MUDA, respectively. No take of nests, eggs, or young is anticipated due to compliance by the Permittees with the MBTA. The Plan provides for the relocation of owls outside the nesting season to minimize take that may result in death of individual owls by Covered Activities. The protected habitat combined with remaining

habitat should offset any take that results from Covered Activities. Thus, the take of individual burrowing owl and its associated habitat are mitigated by the long-term conservation proposed by the Permittees.

Swainson's Hawk

Swainson's hawks are migrants, highly mobile and have large home ranges. Swainson's hawks breed throughout western North American, including the Mojave Desert, northeastern California, and the Central Valley and Owens Valley regions of California. The species winters in Central and South America. The northeastern edge of the Inventory Area is the western edge of the species range. They have been documented nesting in the Inventory Area; however, they are not known to be regular breeders in the area.

They nest primarily in riparian areas and forage over grassland or high quality agricultural foraging habitat, such as alfalfa, that supports a high small rodent population. Up to 16 acres of breeding habitat and 4,743 acres of foraging habitat would be affected by Covered Activities under the MUDA. The Permittees will protect, in perpetuity, at least 12 to 16 acres of riparian breeding habitat and an estimated 3,614 to 4,451 acres of foraging habitat, depending on the extent of impacts. The loss of riparian woodland/scrub will be mitigated through in-kind protection of riparian woodland at a ratio of 2:1. Enhancement and restoration of riparian woodland/scrub within preserves will be at a ratio of 1:1. Between 50 and 55 acres of riparian woodland/scrub will be restored within the Preserve System (Plan Table 5-17), much of which will be suitable breeding habitat for Swainson's hawk. An estimated 250 to 400 acres of cropland or pasture will be acquired to support Swainson's hawk foraging along Kellogg Creek, Marsh Creek, or adjacent to Dutch Slough. Those lands acquired must be suitable for riparian restoration. Acquired conservation easements will require landowners to enhance the value of agricultural lands for Swainson's hawk. Wind turbine leases within the Preserve System will be retired, when feasible, to reduce injury and mortality of Swainson's hawk and other raptors.

Impacts to Swainson's hawk will be minimized by requiring surveys for nests prior to submission of an application for coverage under the HCP/NCCP. Preconstruction surveys are required in areas with active nests. No take of nests, eggs, or young is anticipated due to compliance by the Permittees with the MBTA. The Permittees will protect grassland habitat, restore riparian habitat, acquire conservation easements, increase the prey base for hawks, and avoid direct take of the species and therefore, the impacts to Swainson's hawk will be negligible. The long-term protection and conservation proposed by the Permittees minimizes and mitigates the impacts to Swainson's hawk.

Silvery Legless Lizard

Silvery legless lizards occur from Antioch south through the Coast, Transverse and Peninsular Ranges, along the western edge of the Sierra Nevada Mountains and parts of the San Joaquin Valley and Mojave Desert. The EBRPD Legless Lizard Preserve is east of the intersection of Highway 4 and Big Break road north of Oakley. Based on the HCP/NCCP habitat model, habitat for silvery legless lizard is restricted to sandy soils on approximately 3,500 acres of the Inventory Area, scattered through the central and southeastern portions. However, grazing, off-road

vehicle activities, introduction of exotic grasses into sand habitat, and predation from feral cats may preclude lizards from occupying modeled habitat.

Up to 298 acres of impacts to modeled habitat will occur under Plan implementation. The Permittees will preserve and manage, in perpetuity, 153 to 166 acres of modeled habitat under the IUDA and MUDA, respectively. Preserves will be managed to benefit silvery legless lizard by restricting recreation activities that may impact lizards, and restricting pesticide use, which can reduce prey availability. Buffers between protected habitat and the urban edge will benefit silvery legless lizard by discouraging intrusion by domestic predators. The Inventory Area comprises very little of the species' range, and with the acquisition of lands that are predicted to provide habitat and will be managed to benefit silvery legless lizard, the impacts to this species are expected to be low. We believe the long-term protection and management for the silvery legless lizards minimizes and mitigates the impacts to this species.

Alameda Whipsnake

Alameda whipsnakes are endemic to the western and central portions of Alameda and Contra Costa Counties. Consequently, the Inventory Area constitutes an essential portion of the subspecies' existing habitat, which has been fragmented into five largely disjunct populations. Core habitat under this Plan is defined as open and low-growing shrubs, primarily chaparral and the surrounding grassland out to 500 feet. Rock outcrops near these areas are also thought to be important for the subspecies. However, Alameda whipsnakes are known to utilize grasslands (distances of up to 4 miles have been documented, but typical distances are closer to 1 mile) to move between scrub patches. This allows for connectivity, which is important for the maintenance of healthy populations.

Up to 29 acres of impacts to core habitat and up to 341 acres of movement habitat will be impacted because of Covered Activities. In total, this represents less than 1% of the total chaparral/scrub habitat within the Inventory Area. The Preserve System will protect between 237 and 286 acres of core habitat, between 5,590 and 8,580 acres of upland movement habitat, and between 46 and 51 miles of stream movement habitat under the IUDA and MUDA, respectively. Preserves will be managed to maintain habitat through prescribed burning, if feasible, for vegetation control and to provide a thermal mosaic for basking. Because whipsnakes may bask on open roads, recreational activities that may impact whipsnakes, such as mountain biking, trail placement through core habitat area or the placement of new trails near core habitat will be restricted. Core whipsnake habitat between Clayton, Black Diamond Regional Preserve, Mt. Diablo State Park, and further south will be acquired to maintain connectivity between occupied areas. Take of Alameda whipsnake will be negligible and the species should benefit from the large amount of conservation that will occur compared to the small amount of loss. The long-term management and protection of Alameda whipsnake habitat will provide the habitat components needed to support the snake's essential behavioral patterns. We believe the long-term protection and conservation proposed by the Permittees minimizes and mitigates the impacts to the species.

Proposed critical habitat for Alameda whipsnake was finalized on October 2, 2006. The Service excluded 45,413 acres within the proposed Subunit 4 (Mount Diablo - Black Hills) because of the protections proposed by the HCP/NCCP or because the land was owned by EBRPD.

Giant Garter Snake

The giant garter snake is endemic to the valley floor of the Sacramento and San Joaquin Valleys of California. The historic distribution extended from Sacramento and Contra Costa Counties. Some experts consider Contra Costa County outside the range of the giant garter snake and it is only known from the Inventory Area through one historic record near Antioch. However, that may be due to a lack of survey effort. Areas west of Marsh Creek are not considered within the range of the giant garter snake.

Garter snake habitat in the Inventory Area consists of sloughs and adjacent areas associated with agricultural fields. The HCP/NCCP habitat model identifies approximately 151 miles of sloughs suitable for breeding and 14,016 acres of suitable foraging and movement habitat in the easternmost portion of the Inventory Area. Estimated impacts under the MUDA are 0.4-mile of impacts to sloughs suitable for breeding and 2,674 acres of foraging and movement habitat. Between 1 and 3 miles of modeled core habitat will be conserved depending upon the amount of impact. At least 250 acres of cropland or pasture within Zone 6 will be acquired. The Dutch Slough area is a priority for restoration activities. The amount of restoration is undetermined, but up to 72 acres of slough/channel restoration could occur in the Inventory Area if suitable sites are available.

Mitigation for permanent impacts requires that for every acre of aquatic habitat lost, an acre of aquatic habitat and two acres of upland habitat adjacent to the aquatic habitat must be acquired. For every acre of upland habitat lost, an acre of upland habitat must be preserved. Seasonal restrictions or buffer zones are required to minimize impacts on giant garter snake. Giant garter snake viability will not be compromised because the proposed action will either compensate for impacts by acquiring lands in fee title or in easements, and restore sloughs and channel habitat, or avoid impacts to occupied habitat through seasonal restrictions. Implementation of the HCP/NCCP is not expected to significantly impair this species' feeding or other essential behavioral patterns that could result in take of the species, to any appreciable degree. Overall, the species should benefit from the Plan, as the managed Preserves will create a higher quality habitat than currently exists, and would be managed in perpetuity. The long-term management and protection of giant garter snake habitat will provide the aquatic and upland components needed to support the snakes' essential behavioral patterns.

Western Pond Turtle

The western pond turtle is a wide-ranging species known to occur within the Inventory Area. Up to 498 acres of non-stream core habitat and 0.1-mile of stream core habitat will be impacted by this Plan. The Preserve System will protect and manage, in perpetuity, 675 to 873 acres of core non-stream habitat and 6 to 7 miles of core stream habitat under the IUDA and MUDA, respectively. Between 21 and 27% of core non-stream habitat, and 18 to 21% of core stream habitat will be conserved. A network of core preserves will protect 1,715 to 1,956 acres of

upland breeding and movement habitat for western pond turtle. Preserves will be established adjacent to existing protected land to maintain contiguous wetland-upland complexes, and an estimated 21 to 22 acres of pond habitat will be created. Approximately 0.6 to 0.8-mile of stream habitat will be restored. Pond creation and stream restoration will incorporate habitat requirements for western pond turtles, where appropriate. Preserve management will include bullfrog and warm water fish removal from ponds. Removal of these predators should increase the survival of juvenile turtles whose survival is considered a limiting factor in recruitment. Therefore, the level of take anticipated for this species is low and the impacts of take, given the species wide range, are expected to be small. The implementation of the Plan should improve conditions for the pond turtle by providing and improving both the aquatic, basking, and upland components needed to support pond turtles' essential behavioral patterns.

California Tiger Salamander

The California tiger salamander is endemic to California and although it still occurs in much of its range, it has been extirpated from many historic localities, particularly at elevations below 200 feet. California tiger salamanders need aquatic habitat for breeding, but spend a significant portion of their life aestivating in underground retreats or in the grassy understory of open woodlands.

Covered Activities will cause the loss of an estimated 68 acres of breeding habitat and 5,571 acres of migration/aestivation habitat. The Preserve System will protect an estimated 96 to 111 acres of breeding habitat and 24,047 to 28,751 acres of migration/aestivation habitat. Breeding habitat will be created and restored as appropriate, and migration/aestivation habitat will be enhanced. A network of core preserves will protect large blocks of migration/aestivation habitat. New linkages will be created in blocks of modeled habitat to facilitate dispersal and colonization throughout the Inventory Area and movement between breeding sites. Twenty-one to 22 acres of pond habitat and 84 to 85 acres of perennial wetland complex will be created to both mitigate for impacts and to contribute to recovery. Ponds will be designed to support the life-history requirements of tiger salamanders, unless the ponds are meant to benefit California red-legged frogs, which have different requirements.

Development guidelines for Covered Activities that occur adjacent to the Preserves or other open space will minimize indirect impacts to tiger salamanders. Prior to construction, the Wildlife Agencies will be notified of any suitable breeding habitat to be filled to allow salvage of egg masses, larvae, and/or adults. The proposed action is likely to enhance the viability of the species in the Inventory Area through the protection of extensive breeding and aestivation habitat, and the creation and management of up to 22 acres of ponds and 85 acres of perennial wetlands, most of which will be suitable for tiger salamanders. Enhancement of these ponds will benefit tiger salamanders. The measures incorporated into the HCP/NCCP to minimize and mitigate effects should provide an overall benefit to tiger salamanders and effectively offset the impacts of any future take under the Plan. The long-term management and protection of tiger salamander habitat, in perpetuity will provide the aquatic and upland components needed to support the salamander's essential behavioral patterns.

California Red-legged Frog

The California red-legged frog is known from 81 documented occurrences in the Inventory Area. California red-legged frog requires aquatic breeding sites in the form of ponds and streams with dense, shrubby riparian or emergent vegetation. During dry periods, red-legged frogs may retreat into burrows or other areas that provide appropriate moisture and thermoregulation. During wet weather, they may disperse overland for distances up to two miles.

Impacts of up to three acres of non-stream breeding habitat, 0.6 miles of stream breeding habitat and 7,785 acres of upland movement habitat will occur from Covered Activities. Plan implementation will conserve between 28 to 36 acres of non-stream breeding habitat, 85 to 98 miles of stream breeding habitat, and 24,455 to 29,467 acres of upland movement habitat. Additionally, between 0.6 to 0.8 miles of stream habitat will be created or restored, 84 to 86 acres of perennial wetland complexes will be restored, and 21 to 22 acres of pond habitat will be created to both mitigate for impacts and to contribute to recovery.

Compensation for the loss of aquatic habitat for red-legged frog will be at a ratio of 1:1. Up to 22 acres of ponds will be created and managed to both mitigate for impacts and to contribute to the recovery of red-legged frog. Ponds will be designed to support the life-history requirements of red-legged frog, unless the ponds are constructed to benefit tiger salamanders, which have different requirements. Stream restoration will enhance habitat for red-legged frog. Planning surveys for suitable breeding habitat will be conducted prior to submission of application packages for coverage under the HCP/NCCP. Prior to construction, the Wildlife Agencies will be notified of any suitable breeding habitat to be filled to allow salvage of egg masses, larvae, and/or adults. The measures incorporated into the HCP/NCCP to minimize and mitigate effects on California red-legged frogs should provide an overall benefit and effectively offset the impacts of any future take under the Plan. The long-term management and protection of red-legged frog habitat, in perpetuity, will provide the aquatic and upland components needed to support the frog's essential behavioral patterns.

Foothill Yellow-legged Frog

Foothill yellow-legged frogs have the potential to occur in streams in riparian woodland/scrub, grassland, oak savanna, and oak woodlands in the Inventory Area. Foothill yellow-legged frogs use perennial streams as breeding habitat and ephemeral streams as dispersal corridors. There were 11 known documented occurrences in the Inventory Area, but currently they are only known to exist on Mount Diablo. Impacts of up to 0.1-mile of stream breeding habitat and 0.6-mile of stream movement habitat may occur because of Covered Activities. Between 5.2 to 5.6 miles of streams will be protected, and restoration will create or enhance breeding and foraging habitat for the species. Preserved streams include both perennial and ephemeral streams. Perennial streams impacts, including suitable foothill yellow-legged frog habitat, will be mitigated at a preservation ratio of 2:1. Mitigation also requires stream restoration, and the restoration and/or creation of up to 55 acres of surrounding riparian woodland/scrub. Land acquisition will be focused along Marsh Creek, especially in the upper reaches, where modeled suitable breeding and dispersal habitat for yellow-legged frog is most extensive and under threat. Development guidelines, including stream setback requirements, ensure that impacts on this

species from Covered Activities are avoided or minimized. Given the small amount of impacts resulting from Covered Activities compared with the amount of restoration being implemented, impacts to the species are expected to be negligible. Furthermore, the long-term management and protection of yellow-legged frog habitat, in perpetuity, will provide the habitat components needed to support the frog's essential behavioral patterns.

Vernal Pool Fairy Shrimp, Midvalley Fairy Shrimp, Vernal Pool Tadpole Shrimp

The distribution of shrimp species within the Inventory Area is poorly known due to a paucity of surveys for the species and their habitats. Seasonal wetlands and vernal pools provide core habitat for all the covered shrimp species except longhorn fairy shrimp (see below). Although 121 acres of seasonal wetland complexes were mapped within the Inventory Area, an additional 484 acres of undetermined wetlands were identified, many of which may be suitable for covered shrimp species. Because these habitat features are difficult to identify from air photos and because access to private lands for field verification was restricted, habitat models for covered shrimp were not developed.

Most vernal pools in the Inventory Area are thought to be located either on public lands such as Los Vaqueros Watershed, Cowell Ranch State Park, or near the Bryon Airport. Most of the seasonal wetlands around the Bryon Airport, including vernal pools, are within the Byron Airport Habitat Management Lands. Small, scattered pools may occur in unsurveyed areas of the lower-elevation grassland habitat south of Antioch and Brentwood. Areas in which additional vernal pools could be found are expected to experience limited impacts both in absolute acreage and relative to the overall proportion of available vernal pool habitat. Of the 605 acres of seasonal wetland complexes and undetermined wetlands identified in the Inventory Area, an estimated 43 acres would be lost to Covered Activities under the IUDA and 56 acres under the MUDA. This represents the maximum amount of habitat loss for all covered shrimp (assuming all 56 acres are suitable).

The Permittees will conserve between 129 to 168 acres of seasonal wetland complexes, and create and restore between 104 to 163 acres of seasonal wetland complexes, some of which is expected to be suitable for midvalley fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp. Restored seasonal wetlands will be evaluated to determine if covered crustaceans are present at frequencies similar to those in natural seasonal wetland complexes. If not, the feasibility of transplanting species from occupied wetlands to restored wetlands to establish new populations will be assessed. Prior to submission of an application package, planning surveys will identify modeled habitat for covered shrimp species. Preconstruction surveys are required in areas with modeled habitat. If occupied sites are identified, buffer zones or seasonal restrictions are required. If covered shrimp occupy seasonal wetlands, applicants must compensate for impacts to these wetlands by creating, preserving, and restoring suitable vernal pool habitat within the Inventory Area, or by purchasing an appropriate number of credits at an approved vernal pool mitigation bank that serves the Inventory Area, as further described in Conservation Measure 3.8 of the Plan. Applicants have the option of assuming presence of covered shrimp in lieu of conducting presence/absence surveys and compensating accordingly. Implementation of the minimization and mitigation measures will effectively mitigate for the low level of take of these Covered Species.

Critical habitat for vernal pool fairy shrimp is found within the Inventory Area in two subunits. Subunit 19A is located south of Brentwood near the Marsh Creek Reservoir, and Subunit 19B is located north, west, and south of the Byron Airport. Limited urban growth or covered rural infrastructure projects will occur within designated critical habitat. Covered rural infrastructure projects that may affect critical habitat include the Vasco Road Widening, the Vasco Road–Byron Highway Connector (depending on its final location), and the expansion of the Byron Airport. There are 2.4 acres of overlap between Covered Activities and wetland land-cover types that may support critical habitat for this species. Another 35.3 acres of annual grassland and alkali grassland within critical habitat for vernal pool fairy shrimp may be affected by Covered Activities. Small wetland features within these grassland types may also constitute critical habitat for this species.

Critical habitat for vernal pool tadpole shrimp does not occur in the Inventory Area so there would be no effects on critical habitat for this species. Midvalley fairy shrimp has not been federally listed, therefore, there is no designated critical habitat.

Longhorn Fairy Shrimp

Longhorn fairy shrimp occurs in ephemeral pools in sandstone rock outcrops. Within the Inventory Area longhorn fairy shrimp is known only from the Vasco Caves Regional Preserve and from an adjacent private owner parcel. Accordingly, no direct impacts on longhorn fairy shrimp habitat are expected unless additional occupied areas are discovered within the Permit Area outside the Vasco Caves Regional Preserve.

To mitigate for take of these crustaceans, between 129 and 168 acres of seasonal wetland complexes will be acquired and managed in perpetuity. In addition, 104–168 acres of seasonal wetland complexes will be created or restored. Longhorn fairy shrimp are associated only with rock outcrops in this area so it is unknown whether protection and restoration of wetland complexes will be of any benefit to the species. To minimize impacts to longhorn fairy shrimp, planning surveys will be conducted prior to submission of an application package to identify modeled habitat for covered shrimp species. Preconstruction surveys are required in areas with modeled habitat. If occupied sites are identified, buffer zones or seasonal restrictions are required. If covered shrimp occupy seasonal wetlands, applicants must preserve 3 acres of occupied habitat and restore 2 acres within the Preserve System or dedicate an equivalent amount of vernal pool credits in a Service-approved mitigation bank. Applicants have the option of assuming presence of covered shrimp in-lieu of conducting presence/absence surveys and compensating accordingly. Given the species limited distribution within the Inventory Area, it is anticipated that impacts to longhorn fairy shrimp will be negligible.

Longhorn fairy shrimp has approximately 300 acres of designated critical habitat in the Inventory Area wholly within Vasco Caves Regional Preserve (Unit 1A). There are no impacts anticipated to Vasco Caves Regional Preserve from Covered Activities.

Covered Plant Species

Determining the effects of Covered Activities on covered plants is difficult because of the limited information regarding the exact locations of covered plant populations. Habitat losses were estimated based on known habitat attributes and where available, the total area potentially disturbed. Impacts were also estimated for all covered plants based on the number of known occurrences that could be removed by Covered Activities (Table 4-6 of the Plan). Occurrences within large urban areas were assumed to be extirpated; all remaining occurrences are assumed extant. No known occurrences of Mount Diablo manzanita, Mount Diablo fairy lantern, San Joaquin spearscale, Diablo helianthella, Brewer's dwarf flax, or showy madia are expected to be lost from Covered Activities within the UDA. Only one or two occurrences each of the other six covered plants is expect to be lost as a result of Covered Activities within the UDA. Covered Activities outside the UDA, including road grading, road expansion, utility construction and maintenance, and habitat restoration could directly affect populations of all covered plants, but location data are not sufficient to precisely determine impacts.

The Implementing Entity must ensure that adequate numbers of populations of covered plants are included in the Preserve System. The majority of known populations are outside the area where most impacts will occur, so many covered plant populations are expected to be included incidentally in the Preserve System. However, the Implementing Entity must insure that the impacts to covered plants do not exceed those predicted in the Plan Table 4-6 and that those predicted impacts are offset through preservation of populations in the Preserve System. If the Implementing Entity cannot protect the necessary plant populations, then applicants with impacts to covered plants will be required to do so in order to receive take authorization under this Plan.

Pre-acquisition studies on potential Preserve properties will be conducted to establish the presence, absence, and health of covered plant populations. Sites where the size of the populations preserved (measured in terms of acreage and either plant cover or number of individuals, whichever is more appropriate for species and site) are at least as large as the populations of the same species lost to Covered Activities, will be prioritized for acquisition. Where practicable, all lands protecting covered plant populations will be connected to existing protected areas or Preserves. When not practicable, the minimum preserve size to protect covered plant populations will be determined on the basis of site-specific conditions, but will not be less than 40 acres, unless acquiring a smaller site is the only way to meet a land-acquisition requirement. A 40-acre minimum requirement was established because it is a common parcel size in the Inventory Area, and it is the estimated minimum size needed to manage a site properly.

Mount Diablo Manzanita

Mount Diablo manzanita is endemic to Contra Costa County and is known only on Mount Diablo and the adjacent foothills at elevations ranging from 700 feet to 1,860 feet. Covered Activities within the UDA would not result in the removal of any known occurrences of Mount Diablo manzanita. Covered Activities outside the UDA, including road grading, road expansion, utility construction and maintenance, and habitat restoration could result in direct mortality or loss of habitat for this species, but location data are not sufficient to determine precise impacts.

Impacts to this species are expected to be very low for the following reasons: (1) no known occurrences of this species would be impacted by Covered Activities, while two occurrences will be protected if willing sellers are found; (2) only 2 acres of modeled habitat would be removed by Covered Activities, while 414 acres would be protected under the IUDA (447 acres under the MUDA); and (3) preserve management will attempt to enhance habitat quality for this species and maintain the viability of Mount Diablo manzanita populations. Thus, no significant impacts from Covered Activities to existing populations are expected and acquired lands will be protected and managed in perpetuity.

Brittlescale

Brittlescale occurs along the western side of the Great Valley from Glenn County to Merced County and in the small valleys of the inner Coast Ranges. Within the Inventory Area, there are nine occurrences: four within the Los Vaqueros watershed or other public lands; and one occurrence on private lands near Antioch. The remaining populations are found on private lands south and west of Byron.

Covered Activities within the UDA could result in the removal of one known occurrence of brittlescale in the Byron area, and the loss of 81 acres of modeled habitat for brittlescale. Although 81 acres of modeled habitat would be lost under either the IUDA or MUDA, at least 577 to 697 acres of modeled habitat would be managed and protected in perpetuity, and between 61 and 67 acres of alkali wetlands would be restored. Two occurrences under the IUDA (or four occurrences under the MUDA) would be protected and managed in perpetuity, if willing sellers are found. Preserve management will attempt to enhance habitat quality for this species and maintain the viability of brittlescale populations by removing non-native invasive plants. Historical threats to brittlescale have been the conversion of alkali grassland to agriculture. More recent threats include the flooding of alkali grassland to create waterfowl habitat, or conversion to grazing lands and urban development. Modeled habitat will be preserved and managed for the benefit of brittlescale. Therefore, we anticipate that the species will persist within the Inventory Area, and we believe the long-term protection and management proposed by the Permittees mitigates the impacts to this species.

San Joaquin Spearscale

San Joaquin spearscale occurs along the western side of the Great Valley from Glenn County to Merced County and in small valleys of the inner Coast Ranges. Within the Inventory Area there are 32 occurrences, most of which are in the Los Vaqueros watershed, but some are on private lands within the Lone Tree and Briones valleys. Covered Activities within the MUDA would not result in the removal of any known occurrences of San Joaquin spearscale. Covered Activities outside the UDA could directly affect populations of this species, through direct mortality or loss of habitat, but location data are not sufficient to determine impacts precisely.

If habitat for this species is broadly defined to include all alkali grassland and alkali wetland in the Permit Area, Covered Activities would result in the loss of 115 acres of alkali grassland, and 31 acres of alkali wetland complex. This likely overstates the potential impact to San Joaquin

spearscale, as none of the known occurrences would be impacted, but it is the best available estimate of worst-case impacts. Habitat loss would occur in the Byron area. The Permittees will protect and manage, in perpetuity, 900 acres under the IUDA (1,250 under the MUDA) of alkali grassland. Preserve management will attempt to enhance habitat quality and maintain the viability for this species. Therefore, we anticipate that the species will persist within the Inventory Area, and we believe the long-term protection and management proposed by the Permittees mitigates the impacts to this species.

Big Tarplant

Big tarplant is endemic to the Mount Diablo Foothills and is found mostly in eastern Contra Costa County, eastern Alameda, and western San Joaquin counties. There are four known occurrences on Cowell Ranch State Park, seven occurrences on Roddy Ranch, and at least one occurrence at BDM. Covered Activities within the UDA could result in the removal of one out of seven known occurrences of big tarplant outside public land. This occurrence is presumed extant, however, its occurrence is in question because it was last seen in 1937, and land cover mapping of the site indicates that ruderal areas, cropland, aquatic, and urban development are the only land cover types in the immediate vicinity. It is anticipated that only one known occurrence of this species would be impacted by Covered Activities, while three occurrences would be protected, if willing sellers are found.

Impacts to big tarplant are estimated at up to 2,248 acres of modeled habitat for the big tarplant. The Permittees will protect up to 9,300 acres under the IUDA (11,395 acres under the MUDA), in perpetuity. These lands will be managed to control non-native species, and research may be conducted to determine which management techniques will benefit the species. Impacts to big tarplant are expected to be low, and we anticipate that the species will persist within the Inventory Area. We believe the long-term protection and management proposed by the Permittees mitigates the impacts to this species.

Mount Diablo Fairy Lantern

Mount Diablo fairy lantern is endemic to the Diablo Range in Contra Costa County, ranging in elevation between 650 and 2,600 feet. Twelve occurrences are within the Inventory Area, 11 of which are on public lands. The status of the one occurrence outside of public land is uncertain.

Covered Activities within the UDA would not result in the removal of any known occurrences of Mount Diablo fairy lantern. Covered Activities in the Inventory Area could result in the loss of 488 acres under the IUDA (788 acres under the MUDA) of modeled habitat for Mount Diablo fairy lantern. The habitat that could be lost is located south of Pittsburg and southwest of Antioch. The one known occurrence outside public land will be preserved if the population is still extant. If this population has been extirpated, planning surveys will be conducted to ensure that no other population will be removed until a new population is found within the Preserves that are as healthy as or healthier than the population lost. The Permittees will protect, in perpetuity, 11,178 acres under the IUDA (13,360 acres under the MUDA) and restore 42 acres of oak savanna habitat under the IUDA (165 acres under the MUDA), which will benefit Mount Diablo fairy lantern. Preserve management will attempt to enhance habitat quality for this

species and maintain the viability of Mount Diablo fairy lantern populations. Impacts to Mount Diablo fairy lantern are expected to be negligible, and we anticipate that the species will persist within the Inventory Area. We believe the long-term protection and management proposed by the Permittees mitigates the impacts to this species.

Recurved Larkspur

Historically, recurved larkspur ranged from Butte County to Kern County in California's Great Valley. The species now appears to be very rare outside of the southern San Joaquin Valley. There are four occurrences in the Inventory area, three of which are on private land southeast of Bryon. Covered Activities within the Permit Area could result in the removal of two out of three known occurrences of recurved larkspur outside public land in the Byron area.

To offset the loss of up to 25 acres of currently unprotected modeled habitat within the Inventory Area for recurved larkspur, the Permittees will protect, in perpetuity, between 389 and 1,064 acres of modeled recurved larkspur habitat under the IUDA and MUDA, respectively. Restoration of alkali soils would be impractical if they were prepared for agriculture by treating with gypsum or other substances that allow the sodium salts to leach, thereby altering the soil chemistry. However, another threat to recurved larkspur is overgrazing. The Preserve management will preserve alkali grassland and enhance habitat quality for this species by grazing appropriately to maintain the viability of recurved larkspur populations. Therefore, we anticipate that the species will persist within the Inventory Area, and believe the long-term protection and management proposed by the Permittees mitigates the impacts to this species.

Round-leaved Filaree

Round-leaved filaree ranges from southern Oregon through California into northern Mexico. However, most of the populations are known to occur in California, and most of the recently documented occurrences are in the interior foothills of the South Coast Ranges. In the Inventory Area, there are seven occurrences in the Mount Diablo foothills south of Antioch. Six of the occurrences are known from collections made in or before 1941, and some of these may be extirpated. One of the occurrences is known to be on public land in the EBRPD's BDM.

Covered Activities within the Permit Area could result in the removal of two known occurrences of round-leaved filaree. In addition, Covered Activities could result in the loss of up to 888 acres of modeled primary habitat for round-leaved filaree under the MUDA.

To offset the loss of two known occurrences of this species and up to 888 acres of modeled habitat, at least two occurrences will be protected if willing sellers are found. The Preserve System would also protect 2,877 to 2,997 acres of primary habitat and 542 to 633 acres of secondary habitat (See Species Account in the Plan Appendices).

The cause of the rarity of round-leaved filaree is uncertain. It is known to occur on uncommon friable clay soils, and on disturbed environs such as fire trails. In addition, the removal of exotic species has enhanced the successful reestablishment of this species on test plots. Additional research is needed to determine the primary factors that cause this species' rarity.

Preserves will be managed to enhance habitat quality for this species by controlling exotic species, as well as other measures that may be developed in the future. Therefore, we anticipate that the species will persist within the Inventory Area, and believe the long-term protection and management proposed by the Permittees mitigates the impacts to this species.

Diablo Helianthella

Diablo Helianthella is endemic to the San Francisco Bay Area. There are 30 occurrences in the Inventory Area: 28 in Mount Diablo State Park, Los Vaqueros Watershed, East Bay Regional Park District lands; and two on private lands. Covered Activities within the UDA would not result in the removal of any known occurrences of Diablo helianthella.

Although Covered Activities would impact no known occurrences of this species, Covered Activities in the Inventory Area could result in the loss of up to 85 acres of modeled habitat for Diablo helianthella. To offset the loss, two occurrences will be protected if willing sellers are found, and between 6,168 to 7,250 acres would be protected under the IUDA and MUDA, respectively. Additionally, between 42 to 165 acres of oak savanna habitat would be created or restored under the IUDA and MUDA, respectively.

Because many occurrences are on park lands, threats to Diablo helianthella include trail construction and maintenance, brush-clearing and off trail travel. Fire suppression in chaparral may also impact Diablo helianthella because it grows in openings in, and on the margins of, chaparral. Preserve management will avoid placing trails in or near chaparral and will conduct prescribed burns, if feasible. Thus, as no impacts from Covered Activities to existing populations are expected, and acquired lands will be protected and managed in perpetuity, we believe the species will benefit from implementation of the Plan.

Brewer's Dwarf Flax

Brewer's dwarf flax is restricted to the Mount Diablo and adjacent foothills in the east San Francisco Bay Area and to the Vaca Mountains of the southern interior North Coast Ranges. Thirteen occurrences are known in the Inventory Area. Two occurrences are in Mount Diablo State Park, three in EBRPD lands and seven in the Los Vaqueros watershed. One historic occurrence in Antioch has been extirpated.

Covered Activities within the UDA would not result in the removal of any known occurrences of Brewer's dwarf flax. However, Covered Activities in the Inventory Area could result in the loss of 97 acres under the IUDA (255 acres under the MUDA) of modeled habitat for Brewer's dwarf flax. The habitat loss would occur in southern Pittsburg and southwest of Antioch. Specific threats to the dwarf flax have not been identified except by the possible trampling of plants adjacent to foot paths or trails. To offset the loss of modeled habitat, the Permittees will protect between 9,337 and 10,704 acres of modeled habitat, and restore between 42 to 165 acres of oak savanna, which is potential habitat. Thus, as no impacts from Covered Activities to existing populations are expected, and acquired lands will be protected and managed in perpetuity, we believe the species will benefit from implementation of the Plan.

Showy Madia

Showy madia is known from scattered populations in the interior foothills of the South Coast Ranges between 80 and 3,700 feet elevation. Within the Inventory Area, showy madia has been collected near Antioch and between Antioch and Lone Tree Valley. However, the last observation of this plant was in 1941. Currently there are no occurrences in the Inventory Area, but suitable habitat exists.

Covered Activities within the IUDA could result in the loss of 2,533 acres of annual grassland, 42 acres of oak savanna, and 21 acres of oak woodland (4,152 acres, 165 acres, and 73 acres, respectively, under the MUDA) considered suitable habitat for showy madia. To offset the loss of the suitable habitat described above, the Permittee will preserve in perpetuity 13,000 acres of grassland, 500 acres of oak savanna, and 400 acres of oak woodland under the IUDA. Under the MUDA, 16,500 acres of annual grassland will be preserved and the amount of the other preserved habitat types will remain the same. Plan implementation and Preserve acquisition will provide the conditions necessary for the permanent maintenance of a stable, protected population of showy madia in the Inventory Area for the following reasons: No known occurrences of this species would be impacted by Covered Activities; and take will only be permitted as occurrences are identified and added to the Preserve System (one for one) and these new occurrences are comparable to the ones taken in terms of population health (population health is defined biologically in the HCP/NCCP).

Threats to the species include grazing, road maintenance, off-road vehicle traffic, and competition from non-native invasive plants. Preserve management will include control of non-native invasive plants, controlled grazing and no off-road vehicle traffic. Thus, as no impacts from Covered Activities to existing populations are expected, and acquired lands will be protected and managed in perpetuity, we believe the species will benefit from implementation of the Plan.

Adobe Navarretia

Adobe navarretia occurs between 325 and 3,300 feet elevation in the Sierra Nevada foothills, the Central Valley, and the inner South Coast Ranges. Five occurrences of adobe navarretia have been documented in the Inventory Area since 1987. Two of these occurrences are on public lands: Cowell Ranch and the Los Vaqueros Watershed. Three occurrences are on private lands located in Horse Valley, Sand Creek, and Byron Hot Springs. Covered Activities within the UDA could result in the removal of one out of three known occurrences of adobe navarretia outside public lands in the Byron Hot Springs and Sand Creek area. However, it is unknown whether these occurrences would be removed by Covered Activities under the HCP/NCCP because the exact locations of these occurrences are not known.

To offset the loss of 2,471 acres of annual grassland and 43 acres of seasonal wetland under the IUDA (4,310 acres of annual grassland and 56 acres of seasonal wetland under MUDA) that may provide habitat for adobe navarretia, the Permittees propose to acquire 13,000 acres of grassland, and 129 acres of seasonal wetland (16,500 acres, and 168 acres respectively under the MUDA).

In addition, 104 acres of seasonal wetland complexes will be created or restored under the IUDA (163 acres under the MUDA). The loss of the one occurrence of this species would be compensated by the acquisition of one occurrence (Horse Valley), if willing sellers are found. Additional take will only be permitted as additional occurrences are added to the Preserve System (one for one) and these new occurrences would need to be comparable to the ones taken in terms of population health (population health is defined biologically in the HCP/NCCP). Preserve management will attempt to enhance habitat quality for this species and maintain the viability of adobe navarretia populations.

3. The applicant(s) will ensure that adequate funding for the plan and procedures to deal with unforeseen circumstances will be provided.

The Service finds that the Permittees will ensure funding adequate to carry out the Plan. Funding for the acquisition, restoration, management, and monitoring of habitat reserves in perpetuity will be financed through the collection of development fees for authorized development (in acres), as described in Chapter 9 of the Plan.

HCP/NCCP Costs

Costs associated with implementation of the HCP/NCCP are divided as follows: program administration; land acquisition; planning and design of management, restoration, and recreational facilities; habitat restoration/creation; environmental compliance; HCP/NCCP preserve management and maintenance; monitoring, research, and adaptive management; remedial measures; and contingencies. These costs include both the mitigation component required for issuance of the incidental take permit under the Act and the contribution to recovery that is required under the NCCPA. Many of these items are fixed costs. Therefore, some costs savings maybe realized, as the Preserve System gets larger. All costs are in 2006 dollars.

Program Administration. Costs for administering the program are estimated to be approximately $600,000 annually through the permit term. This cost estimate includes staff, facilities, equipment, and vehicles. Administration costs also include travel, insurance, legal assistance, contingency budgets, and in-lieu payment to the County and other land management agencies for law enforcement and firefighting. It is assumed that costs will be required in perpetuity. Cost savings can be realized by partnering with existing land management agencies that have staff with the required qualifications or the infrastructure to hire and manage such staff. However, these partnering opportunities have not been solidified, so costs estimates were based upon the Implementing Entity being a stand-alone agency. This assumption ensures that potential costs of staffing and program administration are not underestimated. In addition, the costs to administer the program was not broken out into how much it would cost to manage mitigation lands, as opposed to lands that will contribute to recovery, because many of these are set costs and the cost analysis would not change considerably.

Land acquisition. These costs, including due diligence, are estimated to be between $191,640,000 and $235,680,000 over 30 years for fee title acquisition or conservation easements over 23,800 -30,300 acres of land with the IUDA and MUDA, respectively. It is anticipated that

acquisitions will be in fee title, however, if conservations easements are acquired, costs could be lower.

Management, Restoration/Creation, and Recreation Planning and Design. These costs are estimated to average (over the 30-year permit term) $205,000 and $208,000 annually depending on the development scenario. It is assumed that the Implementing Entity employees will conduct management, restoration, and recreation planning and design work, habitat restoration/creation work, and monitoring, research and adaptive management work. It is assumed that all planning and design costs would be necessary in perpetuity, but would be reduced substantially after the permit term. The cost analysis is not broken out into separate categories for mitigation lands or lands that will contribute to recovery, because many of these costs are set costs, and the cost analysis would not change considerably.

Habitat Restoration and Creation. These costs are estimated to average $680,000 or $763,000 annually during the permit term with the IUDA and MUDA, respectively. These costs include the amount of acreage that will require restoration or creation to offset the impacts resulting from Covered Activities as required by the Act, and the acreage required to contribute to recovery as required under the NCCPA. These costs were not broken down into separate categories because the amount of acreage that will contribute to recovery only comprises approximately 14% of the total costs.

Environmental Compliance. These costs are estimated to average, $78,000 annually during the permit term. Environmental compliance is assumed to include compliance with NEPA, CEQA, Sections 401 and 404 of the Clean Water Act, Section 106 of the National Historic Preservation Act, Section 1600-1607 of the California Fish and Game Code and other miscellaneous requirements. These costs are anticipated to be incurred during initial preserve management actions for habitat restoration/creation projects and will be reduced significantly, or not incurred at all, after the permit term.

HCP/NCCP Preserve Management and Maintenance. These costs are estimated to average $1,101,000 and $1,215,000 annually during the permit term under the IUDA and MUDA, respectively. It is anticipated that as the Preserve System grows the overall costs will also increase, however, it is expected that the per-acre costs will decrease as the Preserve System grows because per-acre management costs are expected to decrease. Preserve management and maintenance will be required in perpetuity. The costs beyond the permit term are expected to be the same as the costs in year 30 (with annual inflation adjustments described in Section 9.26 of the Plan). These funds will cover the ongoing management and maintenance, exclusive of management planning and design and construction of habitat restoration or creation projects. These funds include the following costs: Preserve System staff; field facilities; field office equipment and vehicles; purchase and maintenance of field equipment; purchase of construction materials; and pond maintenance. Some management and maintenance by outside contractors is anticipated and those costs are included.

Monitoring, Research and Adaptive Management. These costs are estimated to average, $626,000 or $703,000 annually during the permit term under the IUDA and MUDA, respectively. Some monitoring, research, and adaptive management tasks will be required in

perpetuity. These costs are expected to be slightly less than the costs in year 30 (which are approximately $753,000 or $877,000 annually under the IUDA and MUDA, respectively). As the Preserve System grows, the costs will increase overall but the cost per acre may decrease.

Remedial measures. These costs are anticipated to average $55,000 annually during the permit term. Remedial measures for created/restored habitat are not assumed to be needed once performance standards are met. The cost of remedial measures for other Preserve areas is expected to be required in perpetuity. This cost is estimated at $11,000 per year. These costs cover the cost to implement remedial measures in response to changed circumstances or the failure to meet performance standards.

Contingency. A contingency of 5% of the overall Plan costs is included in the cost model. These funds would be used on a short-term basis to offset any program costs that are higher than anticipated. All wetland restoration fees include a 20% contingency to account for risk of failure of restoration projects. In addition, development fees will be raised automatically on an annual basis according to several indices (see *Development Mitigation Fees* in Section 9.3 of the Plan).

Funding Strategy

Funding will come from a variety of sources including development based funding sources, other local funding, and state and federal funding. Chapter 9 and Appendix G of the Plan provide funding details. Developer based funding was allocated on a "fair share" apportionment which was calculated to be 52% of the costs to development based funding sources and 48% of the costs to existing development (i.e., the public). The developer based funding will include developer mitigation fees or land dedications. The County and participating Cities' will adopt ordinances to implement the fee. Non-fee based funding will complement development based funding and state and federal grants. This non-fee based funding includes continued acquisition of lands by EBRPD and local land trusts. State and federal grants would be used only for portions of the Plan that contribute to species recovery not for mitigation.

Due to the high cost of wetland restoration/creation and the specific mitigation requirements of the Plan associated with these activities, there will be an additional fee placed on applicants that fill, dredge, or remove wetlands, streams, ponds, or riparian woodland/scrub land cover types. This wetland fee will be in addition to the basic development fee. Wetland fees will vary by wetland type and reflect the different costs of restoration and mitigation requirements for different wetland types. Wetland fees range from $58,140/acre for riparian woodland/scrub to $172,380/acre for seasonal wetlands. In addition, stream restoration/creation fees will be $474/linear foot for streams less than 25 feet wide and $714/linear foot for streams greater than 25 feet wide. This program will be self-funding and the estimated program costs have been subtracted from the overall Plan when calculating the basic development mitigation fee.

Rural roads pay a different fee amount from other developments because rural roads create unique impacts to Covered Species (i.e., habitat fragmentation) compared to urban development. In addition, many of these roads have not been designed. Depending upon the ultimate design and the optional measures that are incorporated into the design, rural roads may receive a

discount on the fee. Rural road fees are projected to contribute between $4,138,800 and $14,204,700 to fund Plan implementation.

Temporary Impact Fees. It is anticipated that some projects will have small, localized, and temporary impacts. It is not possible to anticipate the number or frequency of these projects. Fees will be assessed using the following formula:

Temporary Impact Fee = *Full development fee x activity footprint x F/30*

where F= the number of calendar years during the permit in which the activity occurs. For activities that disturb soil, *F* must be doubled to account for the longer delay in habitat recovery. There is no estimate of the number of projects, scope, or costs at this time.

If a no-take plant population is found on the site of a Covered Activity, the Permittees will require the property owner to adequately preserve the population, prepare a long-term management and monitoring plan, and fund the implementation of the plan before conferring Take Authorization to that landowner. The land may be transferred to the Implementing Entity provided it meets the biological goals and objectives of the Plan and the property owner fully funds preparation of the required plan and addresses the management needs of the no-take plant population.

Over the 30 year, term of the Plan land acquisition costs for mitigation lands will cost approximately $123,000,000. This is 52% of the overall estimated land acquisition costs (the developer fee is intended to pay for more than 10,562 acres; it is also intended to pay for their share of the additional acres needed for connectivity, imperfect match between habitat requirements, and parcel boundaries, etc).

If deficiencies are identified during the annual review process, the Permittees and Wildlife Agencies will develop strategies to address any additional funding needs consistent with the terms and conditions of the Plan. The contingency fund is intended to offset land management or monitoring costs that are higher than anticipated. If the contingency funds are insufficient to offset this funding shortfall, the Implementing Entity may consider adjusting the management and monitoring requirements, or raise revenue to offset the funding shortfall. Any adjustments to the management and monitoring must still meet Plan requirement.

The local funding plan is intended to keep the acquisition of Preserve System land roughly proportional with the amount of development occurring within the Permit Area. The Plan will be evaluated yearly (beginning at the end of Year 2 to allow accumulation of funds to purchase lands) to determine if additional conservation is needed to maintain "rough proportionality" to the amount of impacts that have occurred. If it is determined that "rough proportionality" (Section 8.6.1 of the Plan) has not been meet all parties will meet to develop a plan to remedy the situation. In addition, the Permittees are required to "Stay Ahead" (Section 8.6.1 of the Plan) of impacts by acquiring land to ensure that progress is being made toward assembling the Preserve System. If the Permittees cannot meet the "Stay Ahead" requirement beginning with Year 2, the Implementing Entity, Department, and Service will meet to develop a plan of action to resolve the deficiency. If the "Stay Ahead" provisions are not being met, the Implementing Entity may

require that landowners provide land in lieu of the fee on a temporary basis until the deficiency is resolved.

The Plan has two mechanisms for adjusting fees to assure the level of funding to implement the Plan is sufficient. These fees will be adjusted annually. The portion of the fee (60%) that will be used for land acquisition will be adjusted based on the change in the annual Home Price Index (HPI) for the Oakland-Fremont-Hayward, CA Metropolitan Division (MSAD) for the prior calendar year (Office of Federal Housing Enterprise Oversight data). The portion of the fee (40%) for Preserve System operations, restoration, and maintenance and wetland fee will increase according to the Consumer Price Index for the San Francisco Bay Region for the prior calendar year.

A fee audit will be conducted by the end of Plan years 3, 6, 10, 15, 20, and 25 to ensure that fees generated by development and other Covered Activities are adequately covering their share of Plan costs. This schedule was set to ensure that there was sufficient data for meaningful audit and that it would contain administrative costs. Fees may be adjusted to reflect a shortfall, but fees must always be based on the fair share apportion.

Costs for post-permit monitoring and management are anticipated to be between $3 and $3.3 million annually for the IUDA or MUDA, respectively. These costs assume that it will take approximately $125/acre/year or $110/acre/year in operational and capital costs for Preserve System operation under the IUDA or MUDA, respectively. Long term funding can come from a variety of sources including, but not limited to: creation of an endowment from cost savings over estimated Plan costs; local tax or other funding; assessments on new development that can contribute to long-term operations and maintenance as a substitute for up to 1/3 of the development fee; establishment of real estate transfer fees on new development; grant funding for long-term management; grazing fees; and the development of partnerships with existing organizations to assist with the purchase and full operation and maintenance of the HCP/NCCP preserves during and after the permit term. The Implementing Entity will develop and begin to implement a detailed plan for long-term funding of the administration and management of the Preserve beyond Year 30, and shall secure all necessary commitments to collect such funding before developing 6,515 acres (50% of the MUDA as provided in Table 4-3 of the HCP/NCCP) or at the end of year 15 year, whichever occurs first.

Unforeseen Circumstances

The Service finds that the Plan includes adequate procedures to address Unforeseen Circumstances. The Plan and IA include procedures for determining the occurrence of, and responses to, both changed and unforeseen circumstances. The Permittees have identified, described, and provided responses in the Plan for eight changed circumstances that may affect Covered Species and their habitat, and can reasonably be anticipated and planned for in the Plan. The Plan's changed circumstances are as follows: listing of Covered Species; listing of non-covered species; natural communities that are lost to fire; invasion by exotic species or diseases; the failure of pond or wetland control structures; destruction of riparian planting by flood; drought; and vandalism of the Preserves. The Plan uses the Adaptive Management strategy and funding to respond to the specified changed circumstances event. In accordance with the

Service's "No Surprises" regulations at 50 CFR 17.22(b)(5) and 17.32(b)(5), in the event of an unforeseen circumstance, and assuming the Plan is being properly implemented, the Permittees may be required to make modifications within the conserved lands or to the Plan's conservation strategy, but only if such modification will not involve the commitment of additional land, water, or other natural resources beyond the level agreed to under the Plan, unless the Permittees consent to such additional mitigation.

4. The taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild.

The Service finds that the taking to be authorized under the proposed Permit will not appreciably reduce the likelihood of the survival and recovery of the federally listed Covered Species in the wild. The Act's legislative history establishes the intent of Congress that this issuance criterion be identical to a finding of "no jeopardy" pursuant to Section 7(a)(2) of the Act and the implementing regulations pertaining thereto (50 C.F.R. 402.02). As a result, the Service has reviewed the Plan under section 7 of the Act. In the Biological and Conference Opinion (Service 2007), the Service reviewed the current status of the Covered Species; the environmental baseline for each of the Covered Species in the Inventory Area; and, the direct, indirect and cumulative effects of the proposed action, including the adverse effects and conservation. The Service concludes in the Biological and Conference Opinion (Service 2007) that the proposed Permit will not appreciably reduce the likelihood of the survival and recovery of the three endangered species and five threatened species in the wild. The Service also concludes that should any of the 20 unlisted Covered Species be listed in the future, issuance of the proposed Permit will not appreciably reduce the likelihood of the survival and recovery of these species in the wild. In addition, the Service concludes that critical habitat for the endangered longhorn fairy shrimp, and threatened vernal pool fairy shrimp, will not be destroyed or adversely modified by the proposed Permit.

5. Other measures, as required by the Director of the Fish and Wildlife Service, as necessary or appropriate for the purposes of the plan will be met.

The Service finds that all additional measures required by the Service as necessary or appropriate for the Plan are included in the HCP/NCCP, IA, and/or the Permit. In particular, the IA, an agreement among the Service, CDFG, and the Permittees that governs implementation of the HCP/NCCP, binds the Permittees to fully implement and fund the Plan.

6. The Service has received the necessary assurances that the plan will be implemented.

The Service finds that the HCP/NCCP and IA provide the necessary assurances that the Plan will be carried out by the Permittees. By accepting their Permit, the Cities, the County, the Flood Control District, EBRPD, and the Implementing Entity are bound to implement fully the provisions of the Plan in accordance with the IA.

IV. MIGRATORY BIRD SPECIAL PURPOSE PERMIT

Pursuant to the Migratory Bird Treaty Act, 16 U.S.C. 703 – 712, and 50 C.F.R. 21.27, the Service finds that the prospective Permittees have made a sufficient showing, in combination with the draft Permit Terms and Conditions, that each of the three Covered Species (golden eagle, Swainson's hawk, and tri-colored blackbird) currently listed under the Migratory Bird Treaty Act will benefit from the conservation measures included in the Plan to minimize disturbance and enhance the habitat of these species. The Section 10(a)(1)(B) permit application, including the HCP/NCCP, submitted by the Permittees, provide detailed information regarding the MBTA related activities, the purpose of such activities, the permit areas, the effects of those activities on the MBTA Covered Species, and other information relevant to the issuance of the Special Purpose Permits required under 50 C.F.R. 21.27. Therefore the Section 10(a)(1)(B) Permit, if issued, shall also constitute Special Purpose Permits under the MBTA and 50 C.F.R. 21.27 for each MBTA Covered Species that may become listed under the Act during the term of the Section 10(a)(1)(B) Permit. Such Special Purpose Permit shall become effective concurrent with the listing of the MBTA Covered Species under the Act.

V. GENERAL CRITERIA AND DISQUALIFYING FACTORS – FINDINGS

The Service has no evidence that the Permit applications should be denied on the basis of the criteria and conditions set forth in 50 C.F.R. 13.21(b) – (c).

VI. RECOMMENDATION ON PERMIT ISSUANCE

Based on the foregoing findings with respect to the proposed action, I recommend approval of the issuance of Permit Number TE160958-0 in accordance with the HCP/NCCP and its supporting IA.

D. Kenneth McDermond
Deputy Manager
California/Nevada Operations Office

7-24-07
Date

References

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